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# Railway Age

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Vol. 86

April 20, 1929

No. 16

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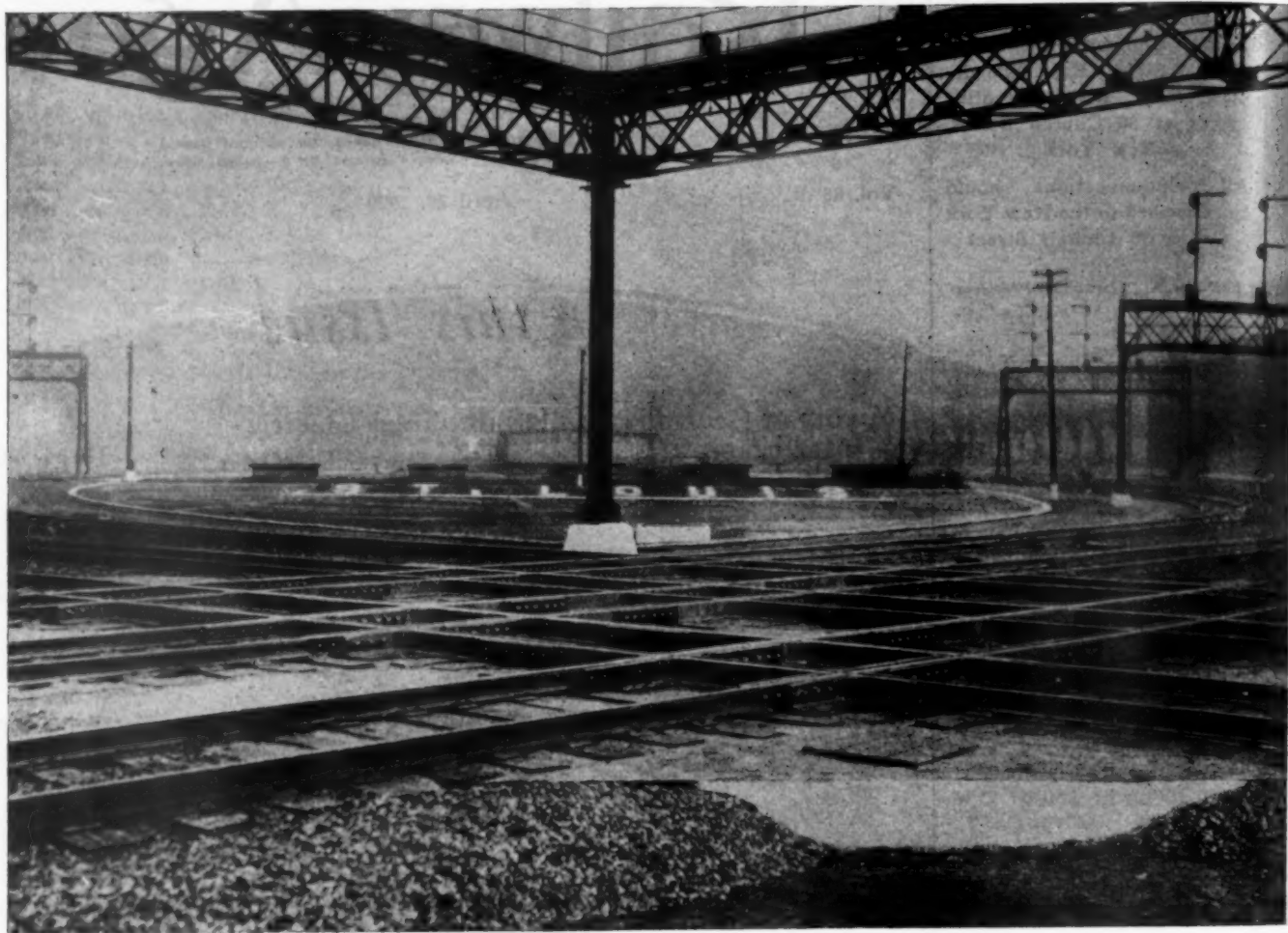
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# Railway Age

Vol. 86, No. 16

April 20, 1929

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## *A Commendable Attitude on Railway Rates*

**T**ESTIMONY at the New York sessions of the Interstate Commerce Commission's investigation into freight container service of the railroads revealed a commendable attitude on the part of the Cleveland Chamber of Commerce. This attitude was outlined by A. N. Brown, its assistant transportation commissioner, who appeared at the hearings to favor an extension of the container service and a lifting of the suspensions on proposed container tariffs. Mr. Brown stated that his organization regarded the container as an experiment designed to fit railway equipment to the needs of business. He added, however, that the Cleveland Chamber of Commerce takes no position with regard to container rates. If the service can be provided at rates remunerative to the carriers and yet lower than the class rates, then his organization favors such rates, but it does not care to see railroads donate their services. Regardless of the merits of the container rate controversy, it is refreshing to record this expression of a fair attitude toward railway revenue requirements in these days of so much nibbling at rates.

## *Boosting Travel*

**T**HE Russell AREB (American Railway Employed Boys) Club on the Boston & Albany at West Springfield, Mass., has a record for constructive accomplishments. It was instrumental in forming a Christmas savings club for all of the employees in the shops and enginehouse at that point, which has been carried on for several years and for one year had deposits of over \$25,000. It has helped in the formation of Americanization classes, which meet at noon on four days of each week, and which have made it possible for many foreign born employees to secure citizenship; the average attendance this year is over sixty. Its latest accomplishment, however, is even more unusual. The young men addressed about 150 letters to railroad and steamship executives and travel bureaus and agencies, asking for copies of their 1929 display calendars, or such posters as they might care to contribute. As a result, the club has a collection of over 100 large posters, which it has already exhibited before the Chamber of Commerce and other civic bodies, and is now displaying in the dining room, foyer and auditorium of the Railroad Y. M. C. A. building. The collection is still in the process of growing and the young men expect to place it on exhibition before a number of clubs and special meetings. It is their contribution to creating an interest on the part of their friends and the public in general to travel on the railroads the world over. The posters are attractive in appearance and the exhibit, in addition to having a real educational

value, is most striking. A constructive performance of this kind should also react favorably upon the young men themselves.

## *Are Prices Too Low?*

**T**HE slogan "Prosperity Without Profit" has been repeated so often as to become trite and the complaints of manufacturers that prevailing prices are so low as to yield an inadequate return, are accepted at a discount. Nevertheless, the persistence of this cry of distress, when supported by specific statements of drastic price cutting by competitors, is indicative of an unhealthy condition in the marketing of railway supplies. There is no question but that the railroads have profited from active competition and will continue to do so, so long as this competition remains normal, and the seller realizes a fair profit. But competition resulting in abnormally low prices cannot continue indefinitely. There are a number of reasons why prices established in a sale may be appreciably lower than those which an unsuccessful bidder could meet. The successful bidder may possess the advantage of greater efficiency in production. He may suffer from inexperience and lack an accurate knowledge of the real costs. He may have deliberately lowered his price below cost for the purpose of freezing out or forcing a consolidation with a competitor of less financial strength. He may be the victim of sharp practice of the buyer in playing one bidder against another. If any or all of the last three causes are responsible for low prices, such low prices cannot continue indefinitely for they will lead the way eventually to an elimination of competition through consolidation or the establishment of "understandings," and subsequent bids will be higher. Encouragement of legitimate competition will accrue to the advantage of the railroads, but any tendency to take undue advantage of a situation that is economically unsound is sure to have a harmful effect.

## *Simplified Electric Interlocker Cuts Investment Cost*

**U**NMISTAKABLE evidence is at hand that the trend in the design of signaling facilities is in the direction of simplification. This is to be commended for it promises even greater possibilities of service to the railways than have been realized thus far. Moreover, it is a reflection of the current interest and activity in this direction, which was initiated and prosecuted so effectively by Herbert Hoover when he was secretary of commerce. Specific evidence of one railroad's creative efforts in this direction is to be found in the columns of this issue. The Michigan Central signal officers conceived the idea of incorporating the electrical control of

interlocked color-light signals with the illuminated track diagram usually employed at such plants. The scheme has been found to be entirely practical and might be termed the essence of simplicity from an operating viewpoint. What could be simpler than to push a button at the signal location marked on the track diagram, whenever it is desired to clear a signal? No complicated "manipulation chart" has to be mastered before the towerman can be judged proficient enough to handle traffic at a busy interlocker. None of this simplicity and facility of operation has been achieved at the expense of safety, for this new plant is without doubt the most complete from an electric locking standpoint of any on the Michigan Central. The six power-operated switches in the plant are controlled by means of desk-lever units, which have special "snap" contacts that can safely carry the 110-volt energy for the switch machines. These control levers are suitably interlocked mechanically with each other and with a master "traffic lever" to secure the safety features inherent in all interlocking plants. It is apparent, therefore, that this railroad has developed a new idea in the signaling field, which deserves the best thought of operating and signal officers of other roads.

## Pressure Lubrication of Locomotive Parts

THE successful operation of locomotives in any service is absolutely dependent upon the kind and amount of lubrication applied to the working parts. One of the most promising developments in this important detail of locomotive operation has been the increasing use, particularly in the past two years, of pressure lubrication systems, by means of which the lubricant, usually a soft grease, is applied to the bearing surfaces under air pressure, or quick-acting mechanical pressure. Experience with modern methods of pressure lubrication in long run passenger, freight and switching service, indicates numerous advantages over former methods of lubricating, symbolized by the familiar engineman's oil can.

In the first place, adequate pressure is provided to assure the lubricant pushing any dirt or other foreign material ahead of it out of the bearing and spreading the lubricant uniformly on the bearing surfaces, but without waste. It is not too much to say that with the old oil cup system, in many cases, 50 per cent of the oil either did not reach the bearing surfaces at all, or immediately dripped out of the bearings and failed to perform its proper function. Next in importance is the time and labor-saving feature of the pressure lubricating systems. The actual saving will vary with the particular system used, but, on a locomotive fully equipped for lubrication with a modern grease gun, a saving of 75 per cent of the time formerly required is not uncommon. Filling main and side rod cups with hard grease and the slow turning of the grease cup plugs and caps with a hand wrench, for example, is a time-consuming operation which can hardly be tolerated at terminals where locomotives must be conditioned rapidly for prompt turn-around service. With the application of efficient pressure lubrication systems, road locomotives can now be operated 1,000 to 1,500 miles, and switching locomotives 24 hours, without intermediate lubricating attention. This means that definite responsibility for lubrication can be concentrated at en-

gine terminals and more thorough and reliable lubrication assured, with consequent improved locomotive operation.

## Modern Motive Power for Secondary Services

IN a paper read before the New England Railroad Club on Tuesday evening, April 9, W. E. Woodard, vice-president of the Lima Locomotive Works, Inc., presented a preliminary design for a locomotive, embodying all of the features of general proportions and equipment associated with the so-called Lima A-1 locomotive for heavy main-line freight service, which has been carefully worked out to meet the average requirements of secondary freight service. As set forth in an abstract of Mr. Woodard's paper, elsewhere in this issue, the design suggested for secondary service is of the 4-6-4 type, with axle loads limited to 52,000 lb. and with boiler capacity sufficient to provide the same general characteristics of sustained horsepower output with relation to starting tractive force that have become familiar in connection with the more powerful locomotive designed for heavy main-line service.

While opinions may differ as to the desirability of all of the details of this specific design, it illustrates possibilities for improving the efficiency of producing transportation in secondary services and the possibilities for materially increasing the amount of use which may be obtained from motive power not primarily intended for main-line service.

Many railroads find themselves with an accumulation of locomotives of numerous types and even more numerous classes which have been set aside at various times as more modern locomotives of higher capacity have been purchased to handle the heavy main-line traffic. Some of these locomotives have been assigned to branch line and other secondary services. Others are unsuitable for such services, being too heavy for track and bridge conditions and of such large capacity as to be extremely wasteful of fuel and maintenance, if attempts are made to utilize them in the light services available for them. Among those which in capacity are in general suitable for the secondary services are many of the Consolidation and ten-wheel types. The fuel efficiency of some of these locomotives has been improved by modernization. In some cases, however, the increased horsepower capacity resulting from the modernization, whether it is utilized in hauling heavier trains or in moving trains at higher speeds, has exceeded the capacity of the original machinery design. Unduly high maintenance costs have been the result. In the case of the larger power, for the utilization of which but limited opportunities present themselves, the railroads are forced to carry a very considerable idle investment and meet high expenses for such service as it does render.

The problem is to determine whether the decreased operating expense which will result from the retirement of a relatively large number of old locomotives and the purchase of a relatively small number of modern locomotives of all-around utility will produce a satisfactory return on the outlay required to install the new power. The reductions in maintenance cost will weigh heavily in favor of the new power. The saving in fuel will

also be an item of importance, although where secondary services are light, it may be difficult to realize the full possibilities of modern power in this respect. There are times, however, when highly efficient light power may be utilized in main-line service to great advantage where traffic requirements make necessary the operation of less than full tonnage trains which cannot be handled as efficiently by underloaded heavy power as by fully loaded light power. The only consideration definitely favorable to the old power is the fact that carrying charges against the original investment in this power have to be taken into consideration only to the extent that this investment has not been transferred to other assets through the accumulation of depreciation charges.

The problem is one which cannot be settled except by a thorough survey of the entire traffic situation. If such a survey were made with the object of determining the motive power of ideal characteristics to meet each traffic condition on the road, without consideration of the motive power which happens to be available, no doubt many possibilities for profitable investment in modern power other than that required for the primary main-line service would be found. It would undoubtedly prove impracticable to provide ideal motive power for every service considered, but a more profitable use of capital would result than were the problem approached with the primary purpose of using all of the power available before considering the purchase of any new locomotives.

## A Fair Trial for New Transportation Methods

THE railroads have been accused from time to time of excessive conservatism, distrust of new methods and stubborn determination to oppose all changes in the way that they do business. The Chicago Tribune, in an editorial entitled "Box Car Psychology", published in its issue of April 9, seizes upon the opposition of the other railroads to the plan of freight container operation proposed by the Missouri Pacific, and holds it up as proof of the Tribune's frequently-voiced contention that railway managements are blind in both eyes to modern ideas. It is true, as the Tribune says, that the other railways opposed the Missouri Pacific plan at the recent hearings in Dallas and Kansas City. Snap judgment of the sort customarily exercised by newspaper editorial writers on matters about which they know little or nothing might construe this opposition as being based on what the Tribune calls "Box Car Psychology". But it is doubtful if a study of the testimony of the opposing railways at the hearings mentioned would support this view. Rather, it would appear to indicate that the opposing railways objected not so much to the container plan of freight transportation in itself as to the way in which it was proposed to be established by the Missouri Pacific.

There is considerably more involved in this case than a simple proposal by a railway to try a new method of handling its business. The Missouri Pacific is a progressive, forward-looking railroad, and its sincere desire to afford better service to its patrons through the provision of container service is not to be questioned. But neither can the opposition of the other railways be fairly attributed to an ingrained distrust of anything

new. New methods in transportation which hold the promise of mutual benefits to the railways and their patrons deserve a fair trial. Whether the Missouri Pacific proposal of container operation falls in this category is a matter for the Interstate Commerce Commission to decide. But to charge the opposing railways, as the Tribune does, with bad faith toward the public, to the extent that they would deprive it of modern transportation facilities, is to ignore not only the nature of the objections of those roads, but also to disregard the fact that they are constantly improving their service to benefit the public and are now providing the best transportation service that shippers and travelers have ever enjoyed.

## Train Limit Legislation

IN the legislatures of several states, especially in the west, legislation has been sought recently by representatives of the brotherhoods of railway train service employees for the purpose of limiting the length of freight trains. A bill that is pending in Minnesota would limit the length of trains to 2,640 feet, or about 59 cars. Legislation to limit trains to 50 cars has been proposed repeatedly in Kansas, and it is understood that another such bill is to be introduced. In Colorado a bill has been introduced to limit freight trains on grades of less than one per cent to 65 cars, and on grades of one per cent or more to 55 cars, and to limit passenger trains to 15 cars, regardless of grade. The principal argument usually advanced in favor of such legislation is that it would promote the safety of operation.

In view of the history of the railroad industry especially within recent years, it is difficult to understand how lawmakers can be induced to consider such proposed legislation seriously, or how labor leaders and railway employes can support it. From the standpoint of the public there is not a valid argument in favor of it. The ability of the railroads to render their present good service at their present rates, in spite of the advances in wages that have occurred since 1923, is due to the increase in the economy of their operation. The increase in the economy of their operation, in turn has been directly and indirectly due mainly to the increase in the length of their trains. The increase in the length of trains has been made possible by the investment of enormous amounts of capital in larger and more powerful locomotives, better freight cars and other improved facilities. The legislation proposed would make it necessary to reduce the number of cars in many trains, and thereby render it necessary to operate more trains.

The effect of this would be to increase almost every form of expense incurred in the conduct of the railroads. They would have to acquire and operate more locomotives, enlarge the roundhouses and shops in which locomotives are cleaned and maintained, run more trains, employ more men and consume more fuel in the operation of trains, provide more tracks for trains to run upon, maintain more equipment and tracks, employ more men and use more materials in their maintenance, and so on, ad infinitum. A committee representing the railways of Minnesota has estimated that the passage of the proposed train limit legislation would add \$6,000,000 annually to the cost of railway transportation in that state alone. "If the railroads had not adopted the longer train, larger engines and many other improvements," said A. L. Janes of the Great Northern, in re-

cently addressing the railroad committee of the Minnesota House, "railroad wages necessarily would be lower than they are and freight rates 20 per cent higher." These estimates seem very conservative. Upon what ground can representatives of the public favor legislation which would inevitably and necessarily increase what the public would have to pay for transportation?

It is claimed that it is needed in the interest of safety. This argument is wholly contrary to the facts and utterly fallacious. The length of trains has constantly increased throughout the last twenty years, and meantime the safety of railway operations has constantly increased. The number of railway employees killed in the United States declined from more than 4,500 in 1907 to 3,200 in 1917, and to only about 1,250 in 1928. The number of trainmen killed in proportion to the number employed is now only one-half as great as it was 10 years ago, and only one-fourth as great as it was 20 years ago. The number of passengers killed was reduced from 610 in 1907 to 301 in 1917, and to 85 in 1928. Increase in the length of trains tends to reduce accidents, because it reduces the number of trains operated, and the fewer trains operated the less likelihood there is of accidents due to train operation.

The inconsistency of the train service brotherhoods in seeking such legislation is inexplicable upon any theory excepting that their sole aim is to increase the number of persons that must be employed by the railways regardless of the effect this will have upon the cost of transportation. Increase in the length of trains increases the so-called "productive efficiency" of employees by increasing the amount of traffic handled per employee. The labor leaders have sought and secured advances in wages upon the ground that the "productive efficiency" of employees has increased. Now they seek legislation the inevitable effect of which would be to reduce this "productive efficiency." Their policy disregards the fact that the ability of the railroads and other American industries to pay present high wages is due to productive efficiency brought about by the use of improved machinery, and is wholly unfair to the railroads and the public.

## Big Shippers and the Railways

THE use by big shippers of their power to divert large amounts of traffic to or from railways as a means of getting advantages for themselves is not new, although the real or ostensible purposes for which it has been used have changed. Its use in the past indirectly caused much of the regulatory legislation now applied to the railways, and also much of the muck-raking to which the railways and "big business" generally were subjected some years ago. Leaders in the railroad and industrial fields thought this muck-raking did much harm, but it was not so much the muck-raking, as the practices that afforded pretexts and material for it, that did the harm.

The era of muck-raking has been followed by one in which "big business" has been on its good behavior, and consequently has become popular. It has tried to enlarge its markets and increase its profits more by increasing its productive efficiency and economy, and less by cut-throat methods, than formerly. What is now occurring in the railroad field affords evidence, however, that "big business" is beginning to forget that its

present popularity and immunity from attacks are due to its recent good behavior, and that it is yielding to the temptation to rely less upon the efficiency of its production and sales methods, and more upon cut-throat practices, to get advantages over its competitors.

### *Traffic Influence, Rebating and Cut Rates*

In past years large business concerns used their power to divert traffic to and from railways to secure secret rebates and cut rates. The effect was to give them unfair advantages over smaller concerns, because, while rebating and rate-cutting were general, the big shippers were able to get larger rebates and lower rates than the smaller shippers. The railways resorted to the pooling of traffic to protect their earnings from the destructive effects of the pressure of the big shippers. When pooling was made unlawful the railways resorted, for the same purpose, to combinations and "community of interests" arrangements. These being held in violation of the Sherman anti-trust law by the Supreme court, rebating, rate-cutting by means of "midnight tariffs", etc., and other forms of unfair discrimination were revived. There resulted a tremendous amount of agitation against the railways and "big business" which caused the passage of drastic legislation against rebating and other forms of unfair discrimination, the penalties for which were made equally applicable to the railway and the shipper.

It is significant that during the regime of rebating and after it was abolished the big shippers participated as loudly as anybody else in denouncing the railways for rebating; that the public gave the railways most of the blame for it; and that they always have been the principal victims of the hostile public sentiment and legislation which it caused. It would be difficult to overestimate how much the unfair discriminations formerly practised have cost the railways. It has taken more than twenty years of great and incessant effort to cause the change in public sentiment toward them that has occurred, and even yet there remains enough of the old public hostility toward them to render it extremely difficult to prevent very unfair railway regulation.

The *Railway Age* began sometime ago to call attention to the increasing use of their traffic being made by large shippers to influence railway purchases. Since then we have received information that is surprising in its variety and volume regarding the use of their traffic being made by shippers to secure advantages for themselves. Large industrial concerns, or men connected with them, have engaged in the manufacture of railway equipment and devices and used the traffic of these large concerns to promote sales to the railways. In one of the largest cities in the country men representing certain large shipping interests have engaged in the ice business and got practically a monopoly of selling ice to the railways. Railways are made to fear the diversion of traffic if they insist on full payment of bills for repairs made upon their lines to tank cars owned by certain oil shipping companies. The power to divert oil traffic has been used to promote the sale of lubricating oil with the result, we are reliably informed, of contributing to epidemics of hot boxes. Concerns that have not a large amount of traffic of their own to give are going into the open market and buying authority to route the traffic of other concerns in order to be able to use it as a sales argument with the railways. Coal shippers insist upon the railways buying their coal for

locomotive fuel almost regardless of its quality, with the more or less veiled threat of diverting traffic if their coal is not bought.

### *A Recent Development*

A recent development which has excited much interest has been the acquisition by the traffic managers of a number of large industries of a substantial block of stock in a certain railway. It has been widely reported, and not denied, that their plan is to give an increased amount of the traffic of the industries they represent to this road for the purpose of increasing its earnings and thereby increasing the value of their stock in it. The purpose to be accomplished in this case by diverting traffic seems to be a new one. The object does not appear to be to get better service or lower rates or more business, directly or indirectly, for the concerns whose traffic is to be diverted.

One railroad is to be favored, at least temporarily, in the routing of traffic, to the loss of competing lines, for reasons which have no relationship to the service rendered, the rates charged, or anything else done or not done by the competing lines. This incident, dissimilar as it is from various practices to which we have referred, is similar in that it indicates a decline in the importance and character of the service rendered as an influence in determining the routing of traffic. We have heard shippers claim for years that the main thing they want from the railways is good service, but we are now hearing of numerous reasons besides service which are influencing the routing of traffic. Has the service rendered by the railways become so uniformly good that shippers feel they need no longer use their traffic to get good service, and that they can therefore use it for numerous other purposes affecting railroad policy, practices and results? If so, perhaps it would be a good thing for railway service to deteriorate somewhat. This might cause some shippers to again route their traffic more largely to get good service and less largely for other purposes.

To what extent, and in what ways, as a matter of public policy and good business, is a big shipper justified in using the power his traffic gives him? The law prohibits him from using it to secure discriminations in railway service or rates, the principal purpose being to prevent big shippers from securing what are regarded as unfair advantages over small shippers. But discriminations in service and rates are not the only means by which unfair advantages can be secured. Suppose a railway that has been buying a particular device from one company begins buying it from another company mainly because the latter company directly or indirectly controls more traffic than the former. Does not the latter company thus get as clear an advantage over its competitor through the influence of its traffic as if it got a lower rate? Is the advantage it thus gets a fair one or not?

If a large manufacturer gets an order from a railway for equipment, or paint, or oil, because, owing to the size of his business, he can sell a good article cheaper than a smaller competitor, it cannot reasonably be claimed that he has secured an unfair advantage over his competitor. If, on the other hand, there is practically a parity of quality and price between the two competitors, and one gets the business because he controls more traffic, has he secured an unfair advantage over his competitor? Apparently not, although even in this case the tendency of the use of traffic to influence purchases obviously is to drive the smaller competitor

out of business. If a large manufacturer secures an order from a railway, in spite of the fact that his article is not as good in proportion to the price he charges as that of a smaller competitor, and because he controls more traffic, has he secured an unfair advantage over his competitor? It seems plain that he has. The result appears to be the same in principle and effect as if he had used his traffic to get a lower rate than his competitor.

There are various points of view from which this subject can be and is considered. The use of purchases to influence traffic or of traffic to influence purchases can never increase the traffic or total earnings of the railroad industry. If it has any effect upon the welfare of the industry this must be upon the efficiency and economy of operation. There can be no question that it tends to cause circuitous routing of freight, the payment of higher prices for equipment and materials than otherwise would be paid, and the purchase of materials and supplies that are inferior to those that otherwise would be bought. In other words, it tends to increase the operating costs of the railroad industry as a whole. Does it work to the advantage of some railways? If so, it necessarily works to the disadvantage of other railways, because the latter roads lose the traffic that the former gain.

What is its effect upon manufacturers and other producers who sell to the railways? It tends to reduce rather than increase efficiency and economy in the production and sales methods of the manufacturers, because the more largely a manufacturer can rely upon the traffic argument the less he needs to rely upon efficiency in production and salesmanship. It may give a concern that controls a large amount of traffic an advantage due to this cause that will more than offset the higher efficiency of the production and sales methods of a competing concern which controls a small amount of traffic.

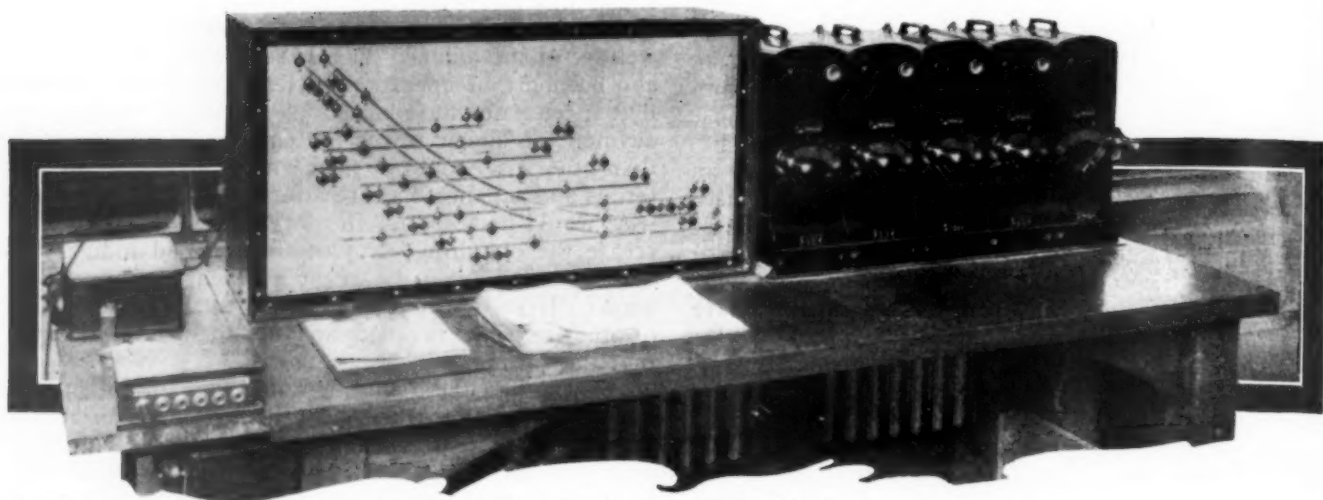
### *Have Business Men A Duty?*

Why are the railways subjected to so much regulation? Spokesmen of big business interests do not hesitate to say that, because of the nature of their service, railways have peculiar duties and obligations to the public and should be subjected to a different kind of regulation from other business concerns. Does the public nature of their service impose special duties and obligations on the railways and their officers and employees alone? Have the business men of the country no duty and obligation to so deal with the railroads as to help railway officers and employees conduct the railroad business in accordance with sound economic principles and a sound public policy? Is it good business, good morals or good sense for the large business interests of the country to demand efficiency and economy in the operation of the railways and the lowest rates compatible with such operation, and, at the same time, to cause, or at least to allow, their sales and traffic departments to use the traffic they control in efforts to coerce railways into adopting practices which directly militate against economical and efficient operation?

If it is a proper function of government to regulate the railways for the purpose of preventing unfair discrimination in rates and service between large and small concerns and to promote efficiency and economy in railway operation, may it not also be a proper function of government to regulate large industrial concerns to prevent them from using their traffic, in ways that are inimical to railway efficiency and economy and that tend to give big shippers advantages over smaller shippers?

# Michigan Central Installs Simplified Electric Interlocker

*Push-button control for signals, and desk levers for power switches effect economy in new plant at Detroit*



*Push-Button Signal Control Diagram and Table-Lever Controllers for Power Switch Machines*

**A**N innovation in the electric control of interlocked color-light signals and power switches is found in a new electric plant recently completed by the Michigan Central at Belt Line Junction, Detroit, Mich., to replace a mechanical interlocker. The most noteworthy feature of the new plant is a combination push-button signal control machine and track diagram, whereby the color-light signals are controlled by means of push-buttons located on this diagram to correspond with the respective locations of the signals in the plant. Adjoining this control panel is a five-lever G-R-S table interlocker for controlling six power-operated switch machines and for the selection of traffic as between the Michigan Central and the Grand Trunk Western, the other road involved in the plant.

A feature of the plant is the absence of derrails. The high signals, of which there are three, are triangular type color-light signals, employing 18-watt, 10-volt lamps. The dwarf signals are the searchlight type, using two indications (red and yellow) except for the two Grand Trunk Western main-line tracks, where the signal aspects displayed are red and green. The power switch machines, the color-light signals, desk-lever units, and other related equipment were furnished by the General Railway Signal Company.

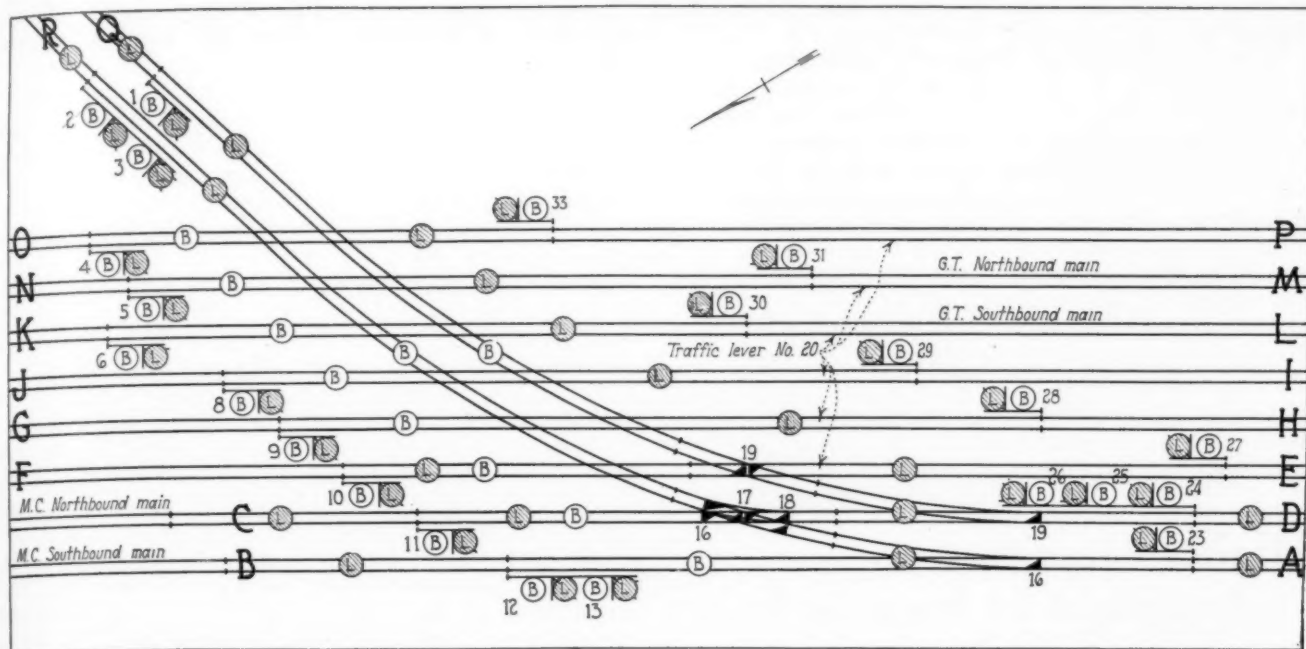
The plant handles the Michigan Central freight trains for the Belt Line, which serves most of the industries at Detroit, and also the Michigan Central's passenger and freight traffic between Detroit and Bay City. The Grand Trunk Western has six tracks in this plant, all of which are crossed by the double-track Belt Line connection. However, no interchange movements between the two roads are made at this plant.

## **Signal Control Diagram and Table Levers**

A three-story brick and concrete building has been provided for the control facilities as well as for a branch

yard office and switchman's headquarters. The top floor is used jointly by the yardmaster and the towerman. The signal control panel, the five table-lever controllers and the relay racks for all of the control relays in the tower, are located in this room. The push-button control machine for the signals resembles the illuminated track diagram commonly used at interlocking plants. However, in addition to the usual indicating lamps, a number of Western Electric push buttons are mounted on this panel. Reference to the track and signal drawing will show that a push button is mounted adjacent to a red switchboard lamp to represent each of the dwarf and high signals in the plant. In addition, track circuit repeating lamps are placed near the center of each track section. There is also a push button in each track section for the purpose of changing a route in the event that it is found necessary to do so before the signal is accepted by a train. The red signal lamps are normally lighted, because the red signal unit is the one normally operated. The track circuit repeating lamps, however, are lighted only when a train enters the track section.

The five-lever G-R-S table interlocker is mounted on the same table as the signal control panel. The four units controlling the six power switches are provided with high-voltage "snap" contacts for the 110-volt motor circuits. Each unit is provided with normal and reverse indicating positions. There is also an electric route lock on each switch machine lever. A red indicating lamp in the upper left corner of each unit informs the leverman when the switch machine has unlocked and is being operated to the reverse position, this lamp being energized only during the operating cycle. The fifth table-lever unit, the one at the extreme right, is a traffic control lever for interlocking the control of train movements northbound and southbound on the six Grand Trunk Western tracks with the diverging Belt Line train movements of the Michigan Central. The five table-lever



Track and Signaling Plan of Belt Line Junction Interlocker, Detroit, Mich.

units are mounted on a common mechanical locking bed: thus the usual preliminary mechanical interlocking features found in all plants are provided in this case.

#### Power Supply Facilities

The power supply facilities are located in the basement of the tower. A 55-cell Exide Ironclad storage battery furnishes energy for the operation of the 110-volt power switch machines. Union electronic rectifiers for charging these batteries are also located in this room. Owing to the use of a sealed jar storage battery, no acid spray or destructive corrosion is experienced and hence the charging equipment is located in the battery room with an attendant saving in space.

An example of the mechanical interlocking will be given. For instance, traffic lever 20, when moved to the right, will permit northbound and southbound movements on the G. T. W. tracks. On the other hand, when lever 20 is moved to the left it is possible to reverse switches 18 and 19 for a diverging movement over the Belt Line. In other words, when traffic lever 20 is in the extreme right position, the Michigan Central switches 18 and 19 are locked in their normal position by traffic lever 20; also when lever 20 is in the extreme left posi-

tion, the reversal of switches 18 and 19 locks traffic lever 20 in the extreme left position.

Assuming that traffic lever 20 is in the extreme right position, the northbound dwarf signal 31 on the Grand Trunk Western main line can be cleared by pushing button 31. At the same time, it is also possible, for instance, to clear high signal 26 on the Michigan Central for a through movement on that line. Operation of the button extinguishes the red indicating lamp, thus informing the leverman that the red signal has changed to green. If the leverman should desire to change the lineup, he would push the button in the center of the track section in advance of signal 31 and this would immediately restore the red signal at dwarf signal 31. This operation would also initiate the operation of a time-element relay (with a time setting of one minute) which, at the conclusion of its operation, would permit the leverman to move traffic lever 20 to the left, preparatory to lining up the switches and signals for a Belt Line movement. If the leverman should inadvertently push the dwarf signal button for the reverse direction; in other words, if he should push button 5 instead of button 31 on the G. T. W., he could immediately rectify his error by pushing button 31, for the last mentioned operation would restore signal 5 to stop and light the green signal



One of the Power Switch Machines Controlled from a Desk-Lever Unit in the Tower

at dwarf signal 31. This operation would involve no time delay.

Whenever the route is changed by pushing the signal-restoring button in the center of the track circuit, the time-element relay is caused to operate, but only the signal on the particular track involved is changed to red, that is, any non-conflicting green signal on any of the other G. T. W. or M. C. tracks will remain green, even though the time-element relay starts to operate. A multiple connection of push-button contacts on the signal control panel prevents the changing of a green signal to red on any of the non-conflicting routes.

Although this electric plant is the simplest of any on the M. C., it is the most complete from the standpoint of electric locking protection. The interlocking of the electrical control is effected by means of two "master" relays.

## Higher Class Rates Proposed for Eastern Roads

WASHINGTON, D. C.  
THE "other side" of the Hoch-Smith resolution, which heretofore has been discussed principally from the standpoint of the rates to be reduced under it, began to show some signs of life at a hearing before Commissioner Eastman and Attorney-Examiner Howard Hosmer of the Interstate Commerce Commission on April 12 in connection with the commission's Eastern Class Rate Investigation.

The hearing was held for the purpose of receiving in evidence the results of a traffic test conducted by the railroads to show the effect of the proposed revision of class rates in Official Classification territory recommended by Mr. Hosmer in his proposed report in the case, made public on April 16, 1928. The testimony presented indicated that the proposed rates might produce an increase of approximately 10 per cent in revenues from class traffic, or about \$43,000,000 a year, when applied to the traffic of the year 1925.

The investigation has been under way since 1924, having been instituted by the commission on a joint petition of the railroads and shippers after the commission had indicated that no more fourth section relief should be granted as to the eastern class rates. The proposed report issued last year, while stating that the investigation had been handled from the standpoint of a revision rather than from the revenue standpoint, suggested that class-rate traffic in official territory "seems a particularly appropriate source" for the recoupment in revenue to be necessitated by the not improbable reductions in certain other rates as a result of the Hoch-Smith resolution.

The Hosmer report proposed a general revision of the class rates in official territory, based on a distance scale of maximum rates for basic use and 23 classes having a percentage relation to the first-class rates. It followed extensive hearings which produced 11,849 pages of testimony and 1,002 exhibits. To ascertain the extent of the increase in revenues which might result from the revision the report proposed the traffic test, which was undertaken by the railroads by applying the proposed scales to the actual waybills on class traffic for 12 days in 1925 selected by representatives of the railroads, the shippers and the commission, and under conditions which they had agreed upon.

The results of the traffic study were presented by F.

J. Fell, Jr., comptroller of the Pennsylvania and chairman of an accounting committee representing the carriers, in the form of a voluminous exhibit, and his testimony was supplemented by that of traffic officers who explained various details of the effect of the proposed rate scales and answered questions put by representatives of the shippers. The commission is now expected to set a date for the filing of exceptions to the proposed report and for oral argument on it, so the proposed rates have yet to run the gauntlet of the shippers and the commission.

The traffic test was taken as of 1925 because that represented the time of the data considered at the hearings in the case. Mr. Fell explained that the test did not cover all the class traffic of the territory and other witnesses explained the reasons why certain traffic was excluded or omitted. The New York Central furnished the data for an incomplete list of stations. Illinois Classification territory was excluded because of the special conditions applicable to it, and all-rail differential traffic because of the effect of rates not involved in the investigation. It was also explained that traffic moving on commodity rates which are the same as the class rates was not included, although traffic moving on exceptions to the classification which apply a percentage of the class rates was included.

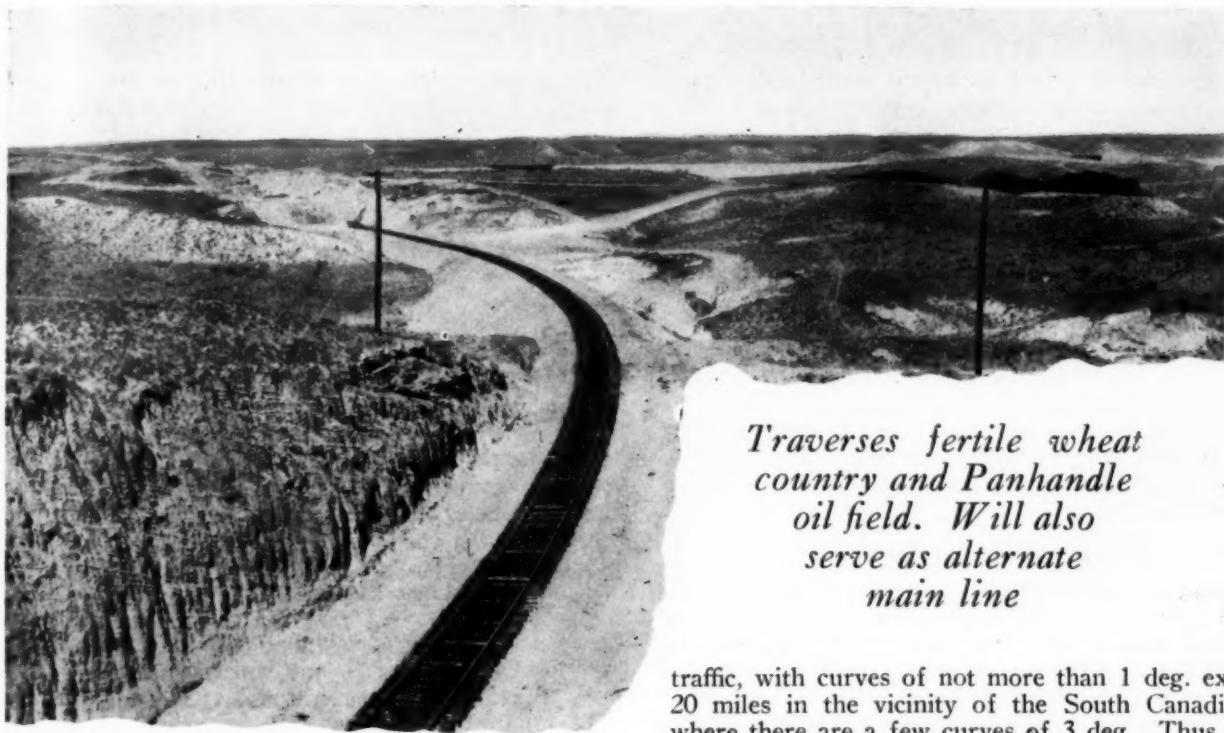
Wilbur La Roe, Jr., representing New York state shippers, expressed a "guess" that the excluded traffic might increase the total possible increase in revenues to \$60,000,000 a year and asked, in view of the importance of the probable effect on revenues, that the railroads stipulate that their revenue reports for 1928 be made a part of the record for the purpose of argument.

R. W. Barrett, vice-president and general counsel of the Lehigh Valley, who appeared as counsel for the eastern roads, said they would object to such a stipulation because if the revenues for 1928 were to be considered the roads would desire to offer some testimony in explanation.

In the proposed report Attorney-Examiner Hosmer said in part: "The new system of class rates should clearly not yield less than the present aggregate revenues. On the contrary there is ground for the view that class-rate traffic in this territory, particularly that belonging to the higher classes, might well pay higher rates than those now in effect. This view is held by many authorities on transportation economics, who believe that freight charges are of far less relative importance in the case of high-grade, manufactured commodities than they are in that of low-grade, raw materials, and it seems to have been at least in part responsible for the enactment of the Hoch-Smith resolution. It is not improbable that under this resolution and the proceedings in No. 17,000 reductions in certain rates may be ordered which will necessitate some recoupment in revenue from other forms of traffic, and class-rate traffic in official territory seems a particularly appropriate source for reasons which will be stated. The approximate extent of the increase will be shown by the traffic test, and this information will be of great value in the final determination of the proceeding."

THE CANADIAN PACIFIC now has under construction in Ontario, Manitoba, Alberta, Saskatchewan and British Columbia 100 sets of cottages, barns and other outbuildings for the use of British settlers, to whom the buildings will be leased for a twelve-month period. Each set of buildings is located on an acre of ground adjoining a large farm. About 40 of the units will have been completed by April 30.

# Rock Island Builds Line in Texas



*It was Necessary to Develop Considerable Distance in the Descent to the Crossing of the South Canadian River*

*Traverses fertile wheat country and Panhandle oil field. Will also serve as alternate main line*

traffic, with curves of not more than 1 deg. except for 20 miles in the vicinity of the South Canadian river where there are a few curves of 3 deg. Thus upon its completion, the Rock Island will be provided with a new through route built to high standards from Amarillo through Liberal to Kansas City and Chicago. Furthermore, the new line will afford an alternate through route between Liberal and Tucumcari, N. M. and the west. For while this new through route through Amarillo will be about 258 miles long as compared with 212 miles via the present line through Dalhart, Tex., it will have grades of 0.5 per cent against northbound and 0.6 per cent against southbound traffic as compared with ruling grades of 0.8 per cent between Liberal and Dalhart and 1.0 per cent between Dalhart and Tucumcari. Moreover, about the time that the Rock Island was ready to undertake construction, the development of the Panhandle oil field added another factor to the potentialities of the Amarillo-Liberal line. The limits of this field have not been completely defined. Its greatest yield to date has centered

**D**URING the 10 or 15 years preceding the enactment of the Transportation Act, there was active competition among the railroads in the development of unoccupied territory in Southwestern Kansas, Western Oklahoma and Northwestern Texas. This competition is now circumscribed by the necessity of securing authority from the Interstate Commerce Commission before a line may be built, but it is as keen today as it ever was. It was clearly manifest in the hearings on the applications of four railroads to build extensions in the South Plains of Northwestern Texas which culminated in the granting of authority to the Fort Worth & Denver City to build some 200 miles of line, extending westward from Estelline, Tex. It is also responsible for the project of the Chicago, Rock Island & Gulf, the Texas subsidiary of the Chicago, Rock Island & Pacific, to build a line from Amarillo, Tex., across the Panhandle of Texas and Oklahoma to Liberal, Kan.

The primary urge for railway development in this territory has been the agricultural potentialities of the so-called North Plains. Until recently devoted almost entirely to grazing, this territory comprises one of the few areas available for wheat growing that await the impetus of adequate transportation facilities. In fact, much of the land along the location of the Rock Island's new line is already occupied by farms devoted to the growing of wheat, Kaffir corn and maize, and the raising of cattle.

## Will Serve as an Alternate Main Line

But the Amarillo-Liberal line is not intended to serve exclusively as a feeder to existing main lines. It is being built with maximum grades of 0.6 per cent against southbound movement and 0.5 per cent against north bound



**Motor Trucks Were Used Extensively in Grading**

at Borger, the end of the Santa Fe ranch extending north from Panhandle, Tex., but it crosses the Rock Island line in a belt that extends from some distance south of the station of Fritch, Mile 38, to north of Stinnett, Tex., Mile 57.

While the low price of crude oil that has prevailed during the last two years has reacted unfavorably on operations in the Panhandle field exactly as it has in other producing areas, it has by no means resulted in a complete suspension in development. Wells are now being drilled near Oil City, carbon black plants are being erected at Sanford and Stinnett and a casing-head gas refinery is being built at Sanford. Based on the available oil supply tributary to its own line, the Rock Island is now making preparations for the operation of its locomotives on oil fuel from Tucumcari to El Reno, Okla., and to Herington, Kan.

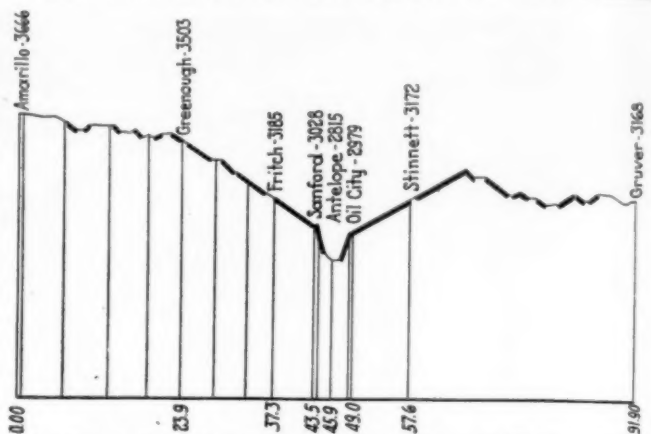
Still another unforeseen development was the discovery, within the limits of the oil field, of a gas field reported to embrace 1,327,000 acres and containing an extraordinary supply of gas. Much of the area is tributary to the station of Fritch, which is the center from which a 16-in. gas main has been built to Lubbock, Tex. and another of 20 in. diameter has been extended to Pueblo, Colo. and Denver.

#### Character of the Country

For most of the distance traversed by the new line, the North Plains presents the appearance of a great treeless table land, broken here and there by the gulleys and canyons of water courses, of which the greatest is that of the South Canadian river, which is encountered in Mile 47. Actually there is a general descending slope to the north from Amarillo at Elevation 3,666 to Liberal at Elevation 2,851, with descents in both directions for a distance of almost 40 miles to the rim of the South Canadian River gorge, and changes of elevation of smaller

extent at the crossings of other streams, notably, the two forks of the Palo Duro creek and its tributaries. Therefore, while the location of the line over considerable distances involved no especial difficulties and entailed only light grading, there are considerable stretches where the general slope of the country is such as to demand the use of the ruling grades continuously for long distances.

This situation was presented in its most intensified form in connection with the crossing of the South Canadian river. With the flood basin of the river confined



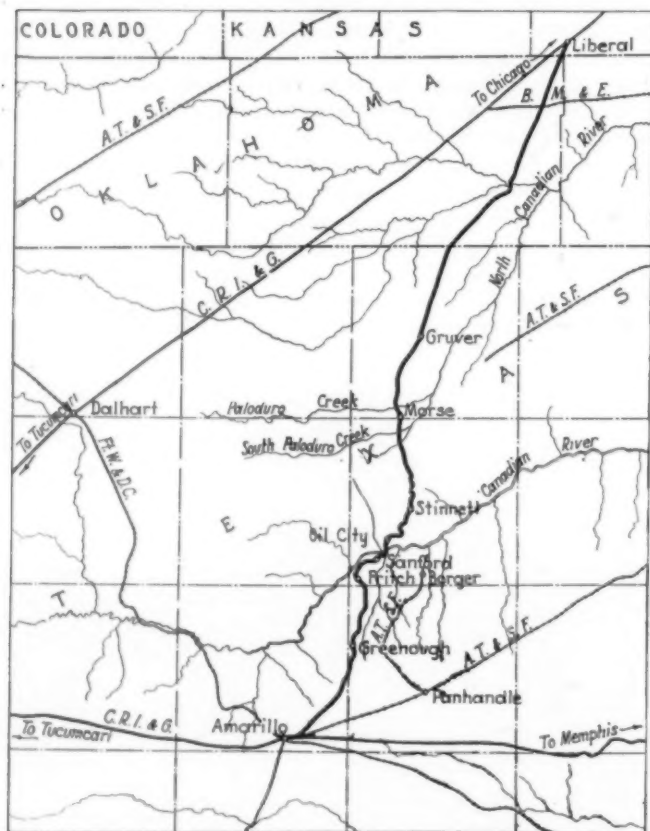
Profile of the Line Between Amarillo and Gruver, Heavy Lines Indicate Ruling Grade

between high bluffs less than one-half mile apart, a high-level crossing of this stream was the obvious solution. Further than this, the slope of the country toward the river for several miles from the north and the south is such that it was possible to confine grades to the adopted maximums of 0.6 per cent against southbound movements and 0.5 per cent against northbound movements only by keeping the line at as high an elevation as possible at the two sides of the river valley. In fact, it was necessary to develop considerable distance on both the north and south descents to avoid exceeding the ruling grades. The difficulties attending the location of the line in this territory were such as to necessitate the use of curvature up to 3 deg. for a distance of about 20 miles as well as to require much heavier quantities in grading than on other parts of the line.

#### Line is Being Built in Sections

The line is being built in progressive sections northward from Amarillo. Work on the first unit, covering 42 miles, was started in 1926 and completed in July, 1927. The second unit, covering the 15 miles to Stinnett, was completed in November of that year, while a third unit, embracing the 34 miles from Stinnett to Gruver, was placed under contract in March, 1928, and was completed by the end of that year. Work on the fourth unit, comprising the 54 miles to Liberal, is now under way.

Until the line is completed to Liberal, it will have the status of a branch feeder line. Consequently it was decided to defer the construction of the high-level crossing of the North Canadian river until the embankments have been thoroughly consolidated and through traffic has been established. The bridge which has been designed for the crossing will consist of nine spans of 250-ft. trusses with necessary approach spans on each end, and will carry a single railway track on the upper chords, 140 ft. above the river bed and a highway deck at the level of the bottom chords. In the meantime, a temporary line five miles long, has been built to provide a low-level crossing. This leaves the bluffs on the south side of the river at Elevation 3,019, descends on grades ranging from 1.7 to 3.6 per cent to Elevation 2,818 at the tem-



The New Amarillo-Liberal Line in Its Relation to Other Railroads in the Vicinity



The Pile Trestle for the Temporary Crossing of the South Canadian River

porary pile trestle bridge across the river, and ascends with grades of 2.0 to 2.35 per cent to a connection with the permanent line on the south side of the river at Elevation 2,971.34. This temporary line involves curves up to 10 deg.

For the first 15 miles north from Amarillo the work was light, 13 miles of this distance comprising a continuous tangent. From Mile-post 15 to Mile-post 35 the grading was moderate, averaging about 35,000 cu. yd. per mile, largely in red clay. From Mile-post 35 to Mile-post 65 the work was heavy, running about 200,000 cu. yd. per mile, including considerable rock, mainly coliche, dolomite and red calcareous shale. All of this rock was encountered south of the river, while north of the Canadian there were several miles in which there were heavy cuts in sand. From Mile-post 65 to Mile-post 70 the grading was extremely light, with some heavy work at the crossing of the south fork of Palo Duro creek, following which the work is light to Mile-post 79. However from that point to Mile-post 84, the line traverses rough, rolling country, involving a succession of cuts and fills ranging from 600 to 5,000 ft. in length and requiring about 400,000 cu. yd. of grading in both excavation and embankment. The remainder of the line to Mile-post 91, the end of the third unit, involves relatively light work.

#### No Filling Trestles Were Built

Being a treeless country, entirely devoid of any improved highways in the vicinity of the line, the use of heavy excavating equipment was deemed uneconomical



The Inception of Construction Work Attracted Enthusiastic Local Interest

owing to the expense involved in moving it on the work, while the building of embankments from trestles was out of the question. For this reason, fresnos and elevating graders were used on the light work, and light steam shovels with wagons and motor trucks were employed on the heavy work. No rail equipment, either narrow or standard-gage, was used by the contractors in the grading operations.

Because of the possibility of excessive costs for haul under these circumstances, contractors were asked to submit prices for embankment made from cut excavation, for embankment made from borrow, and for cuts wasted. The bids received on this basis were studied not only for the purpose of determining the most favorable tender but also to determine the most economical procedure in carrying out the work required for each cut and embankment. Short embankments were made, in most cases, from the material removed from adjacent cuts, but in some instances, particularly in long embankments, it was found profitable to make the fill from side borrow, even if this involved the wasting of material from adjacent cuts. In one case a long cut containing 40,000 cu. yd. of excavation was wasted with a drag-line excavator. The total grading amounted to 2,500,000 cu. yd. on the first 42 miles, 1,150,000 cu. yd. on the next 15 miles, and 1,500,000 cu. yd. for the third unit of 34 miles.

#### Bridge Construction

Inaccessibility of the location also influenced the bridge construction. All larger stream crossings are pile trestles with creosoted piles, caps and braces, and open decks of untreated material. A few waterway openings have been provided for by reinforced concrete box culverts and all smaller openings were made with Massey concrete pipe up to 60 in. in diameter. On the temporary line, the culvert openings were provided by lines of Toncan corrugated iron pipe. Where the fill was not too high, the culvert openings were cribbed to avoid installing the culvert pipe until after the track was laid, thereby obviating truck or team haul.

The most important structure is the temporary low-level bridge across the South Canadian river. This is a pile trestle, 1,850 ft. long with six-pile bents and has its deck floored and provided with a handrail on each side to permit the use of the bridge for highway vehicles as well as railway trains. For most of its length, the bents are spaced 14 ft. center to center and spanned by the usual wooden stringer deck. But across the main channel of the river, the construction was modified by the use of double bents, 27 ft. 7 in. center to center, to



Installing Pipe Culverts North of Fritch

provide 10 wide openings that would introduce less obstruction to stream flow. Here the deck consists of four 27-in. I-beams under the track ties with three 7-in. by 16-in. stringers on each side to support the necessary 18-ft. width of highway floor.

The piles were driven through 15 ft. to 25 ft. of sand and brought to bearing on shale which has a depth of about 165 ft. Added security for the structure is afforded by the presence of two layers of clay in the sand overburden. A special feature of the trestle is the drift protection afforded by driving a short pile about 9 ft. upstream from each bent, this pile being tied to the bent by two sash braces at water level, and two 4-in. by 10-in. planks, extending upward from the pile in an inclined position to form the equivalent of a pier nosing.

#### Track Standards

The track is laid with creosoted ties and 100-lb. rails that had been rerolled to a weight of about 89 lb. per yd. Passing tracks 5,000 ft. long have been provided at intervals of from 5 to 8 miles, while station facilities to meet present needs have been provided at intervals of from 4 to 12 miles. The most important stations at the present time are Fritch, in the gas well area, Sanford and Oil City, in the oil field, Stinnett, the county seat of Hutchinson county and Gruver, near the center of Hanford county.

The track was laid by company forces. On the first 37 miles, where there were no cuts of a depth to interfere with the swinging of a boom, an American ditcher with the dipper removed was used at the head of a material train to serve as a pioneer car for setting the rail. In the remaining distance to Mile 57, the rail was laid by hand. The ties and track fastenings were distributed in advance of material trains with the use of six motor trucks.

In laying rail with the aid of the ditcher, the organization comprised 2 assistant foremen, 10 men placing ties, 3 men spacing tie plates, 2 men applying angle bars, 9 men handling the rails from the car to place in the track, 15 men spiking, 8 lining rails, and 1 peddling spikes. In laying rail by hand the organization was the same, except that 1 man was employed in barring rails off the cars and 2 gangs of 16 tong men each were employed in setting the rails. Ordinarily, the track was only half spiked as the work proceeded so that maximum progress could be made when there was nothing to interfere. Full spiking and other back work was done whenever track laying was delayed by bridge work or other causes. The best day's work in laying rails by hand was 5,900 ft. of track in 9½ hours.

On the 34 miles recently completed, the track was laid with a Roberts track laying machine. The material train for this operation had the pioneer car in front, followed in order by 4 cars of rail, 7 cars of ties, the engine and tender, a water car and a flat car loaded with tie plates and other small track materials. This train carried enough ties and rails for about a mile of track, or a normal day's work. The small track materials on the car at the rear of the train were carried ahead and distributed by hand.

The gang provided for work with this train consisted of 61 men, organized as follows: 1 foreman, 2 assistant foremen, 10 tie buckers, 1 tie line man, 2 strappers, 1 man to handle bridle bars, 2 men hanging angle bars on rails on the machine, 2 extra men, 2 oilers, 3 men handling rails and setting them in place, 1 man on the machine, 7 men unloading ties from cars to the tram, 8 men unloading rail from cars to the tram, 3 men peddling bolts, tie plates, etc., behind the train, 3 men inserting and tightening bolts behind the machine, 12 men quarter spiking behind the machine, and 1 water boy. In addition to this gang, 16 men were employed loading material in the material yard.

No spiking is done ahead of the track laying machine. The rails are held to gage by bridle rods, using two to the rail on tangents and four on curves. The gang spiking behind the machine does only enough spiking so that the work train can get back over the track, ordinarily about every fourth tie being spiked.

The line from Amarillo to Liberal was located and has been constructed under the general supervision of C. A. Morse, chief engineer of the Rock Island System until his retirement on January 1, when he was succeeded by W. H. Petersen. J. L. Adams is construction engineer in charge. The two sections of the line, embracing the 57 miles from Amarillo to Stinnett, were built under contract by H. W. Dennison of Cushman, Ark., while Section 3, embracing the 34 miles from Stinnett to Gruver, was handled under a general contract with A. Guthrie & Co., St. Paul, Minn.



Much of the Grading Immediately North of the River Crossing Was in Sand

# Container Service Hearings Close

*Protesting eastern carriers present rate comparisons at final sessions in New York*

**H**EARINGS in connection with the Interstate Commerce Commission's investigation into container freight service closed with the adjournment of the New York sessions on April 15. These proceedings, which were conducted by Commissioner Claude R. Porter and Attorney-Examiner Harry C. Ames, opened in Washington on February 6 and sessions were also held at Dallas and Kansas City prior to the presentation of the closing testimony at New York.

## Commission Interested in Rate Situation

Before adjournment Examiner Ames outlined several points which he desired counsel for the participants to deal with in briefs to be filed on June 15. In this connection the examiner stated that the interest of the Commission arises primarily from the rate situation. If merely the adoption of new equipment were involved, he added, it is doubtful if the Commission would attempt to dictate in any way. He asked, also, extended discussion of the legal status and potentialities of the freight forwarder and concluded with the statement that since the container situation involves the ploughing of new ground, no relevant phase of the case should be left untouched.

Following the presentation of cost studies on container operation by witnesses for the New York Central, Pennsylvania and Lehigh Valley, as reported in the *Railway Age* of April 13, protesting testimony was heard from the New York, New Haven & Hartford, the Erie, the Delaware, Lackawanna & Western and representatives of protesting western carriers. In addition, Walter Bockstahler, vice-president of the Universal Carloading & Distributing Company, and G. C. Woodruff, assistant freight traffic manager of the New York Central, both of whom testified at the opening sessions in Washington, returned with rebuttal testimony. At the request of Examiner Ames the New York Central also presented the testimony of an operating witness who explained the operating aspects of container handling.

The Baltimore Association of Commerce protested against the new basis of increased container mile rates proposed by the Pennsylvania and also objected to the failure of the Universal Carloading & Distributing Company to make lower rates to its patrons when freight is consolidated into containers instead of box cars.

## New Haven Opposes Container Rates

G. M. Wood, freight traffic manager of the New Haven, presented an exhibit which compared present container rates with existing class rates and also with the new scale of class rates proposed by Examiner Hosmer in the pending eastern class rates investigation. In its consideration of present class rates, this exhibit indicates that the container rate between Boston and New York, based on a 300-mile haul, will cut the first class rate 43.7 per cent when the container is loaded to 4,000 lb. If the container were loaded to 10,000 lb., it would cut the first class rate 63.9 per cent. If the

proposed scale of rates became effective, the rate on a 4,000 lb. container shipment between New York and Boston would be 54.8 per cent less than the first class rate, while a 10,000 lb. container shipment would enjoy a rate 71.1 per cent under first class.

Other existing class rates between the above cities are cut proportionately less by the rate applicable to the 4,000 lb. container, the decrease from fourth class being 1.3 per cent while this minimum container would yield revenue 38.9 per cent above fifth class. A container loaded to 7,500 lb. would yield \$20.25, or the same revenue as would a like amount of freight shipped under the fifth class rate. A 10,000-lb. container, however, would cut this fifth class rate 11.1 per cent. If the proposed eastern class rates became effective a 6,500 lb. container would cut the fifth class Boston-New York rate 0.5 per cent while a 10,000-lb. container would bring 17.2 per cent less gross revenue than the proposed fifth class rate.

Between New York and Springfield, Mass., a container loaded to 5,500 lb. will cut the present fifth class rate 1.3 per cent while a 10,000-lb. container will bring this reduction to 24.5 per cent. Under the proposed class rate schedule, the reduction from the fifth class rate would begin with a 5,000 lb. container load, which would enjoy a rate 4.5 per cent less than fifth class. On this latter basis the 10,000-lb. container would cut the fifth class rate 30.6 per cent. Similar comparisons are made of the rates between Newark, N. J., and Boston and between Newark and Springfield, Mass.

The container rate between Wilkes-Barre, Pa., and Boston, however is above or equal to the fifth class rate in all instances, as is also the case between Rochester, N. Y., and Boston. In connection with the former, the 4,000 lb. container will yield a revenue equal to that produced by a like shipment at third class rates. All heavier loaded containers between Boston and Wilkes-Barre will cut the third class rate but remain above fourth class until a loading of 7,000 lb. is reached. This latter will cut the fourth class rate 2.3 per cent while a 10,000-lb. container will bring the reduction to 15.8 per cent. The revenue on a 10,000-lb. container for this movement is the same as that on a like shipment at the fifth class rate.

Between Rochester, N. Y., and Boston, the fourth class rate is not cut until the container is loaded to 7,500 lb. while a 10,000-lb. container will yield revenue 0.8 per cent greater than fifth class.

Between Cleveland, O., and Boston container rates are above the fourth class rates in all instances and do not cut the third class rates until a loading of 6,500 lb. is reached. A 10,000-lb. container will cut this third class rate 19.9 per cent. Between Buffalo and Boston and between Cleveland and Springfield fourth class rates are lower than container rates until a container loading of 9,500 lb. is reached. If the proposed schedule of eastern class rates were to become effective, however, the only instances where container rates would be above fourth class rates would be on a 4,000-lb. container movement between Buffalo and Boston; movements up

to 6,000 lb. between Cleveland and Boston and 4,000 and 4,500 lb. movements between Cleveland and Springfield.

In his testimony in connection with the exhibit Mr. Wood stated that the savings on loss and damage payments claimed for container operation, could not be figured as applicable to all l.c.l. freight since much of this latter is not suitable for loading into containers. He said in conclusion that the New Haven is not opposed to the container as a mechanical device but that his road was opposed to present and proposed container tariffs.

#### Container Would Increase Empty Movement

He was followed by G. G. Butler, superintendent of freight transportation of the New Haven, who presented an exhibit showing the empty box car movement to and from his road. This exhibit indicated that during the 11 months from April, 1928, to February, 1929, the New Haven received from connections 86,583 empty box cars or an average of 7,871 per month. During the same period it delivered to connections a total of 277,434 empty box cars or an average of 25,221 per month. In his testimony this witness explained that the nature of the New Haven traffic is such that it receives five car loads for every three delivered and hence more cars are received under load than are required to accommodate any local l.c.l. loading. Since, therefore, Mr. Butler concluded, the New Haven already has ample empty box car mileage to accommodate its l.c.l. traffic, the introduction of the container car on its lines would only add to this empty mileage.

#### C. F. A. and Container Rates Compared

R. C. Fyfe, chairman of the Western Classification Committee, presented an exhibit which compared container rates proposed for Central Freight Association territory by the New York Central with C.F.A. class rates. This exhibit indicated that between Cleveland and Chicago a container loaded to 4,000 lb. would cut the Rule 26 class rate which is between third and fourth class, while a 10,000-lb. container would cut the fifth class rate; between Toledo, O., and Chicago a 10,000-lb. container would cut the sixth class rate; between Grand Rapids, Mich., and Chicago a 4,000-lb. container would cut the fifth class rate, while a 6,000-lb. container would cut the sixth class rate; between Indianapolis Ind., and Chicago a 6,000-lb. container would cut the sixth class rate by 1.3 cents per 100 lb. while a 10,000-lb. container would cut this same class rate 5.04 cents per 100 lb.; between Chicago and St. Louis an 8,000-lb. container would cut the fifth class rate by 1.47 cents per 100 lb. Several other specific rate comparisons were set forth in this exhibit but the foregoing are the more drastic reductions from the class rates as outlined by Mr. Fyfe in his oral testimony.

G. F. Vivian, cost accountant of the Chicago, Milwaukee, St. Paul & Pacific next offered an exhibit, which set forth the ton-mile revenue which would accrue from the container movements assumed in the Fyfe exhibit. This resultant ton-mile revenue was compared with the revenue per gross ton-mile reported by the New York Central for the year 1927. He was followed by J. A. Brown, assistant vice-president of the Missouri Pacific, who told of facilities which this road has provided in anticipation of the inauguration of container service.

#### I. C. C. Agents Testify

Examiner Ames then called J. Frank Brady, service agent of the Interstate Commerce Commission, who stated that he had investigated container service furnished by the Pennsylvania at Baltimore and Pittsburgh.

At the former point he found that during January, 1929, one shipper, other than the Universal Carloading & Distributing Company, had used the service. This shipper had forwarded 12 containers while the Universal had forwarded the remaining 351 out of the 363 dispatched. This total movement required 157 container cars, each loaded with an average of 2.3 containers. Of the 157 cars 73 carried one loaded container, 30 carried two, 17 carried three, 12 carried four and two carried five loaded containers each. The remaining 23 cars carried a full battery of loaded containers. The average container load was found to be 7,002 lb. At Pittsburgh, during December, 1928, Mr. Brady testified, the Universal received 159 container cars with 376 loaded containers and also 128 box cars. The container cars earned for the railroads a revenue of \$63.50 per car while the box cars earned \$137.20. The average haul on the container cars was 334 miles as compared with a 449-mile haul on the box cars. Car mile earnings respectively were 19 cents and 30 cents. Outbound from Pittsburgh during the same period 300 container cars and 409 box cars were forwarded for the Universal. These earned respectively 9.8 and 40 cents per car mile.

#### L. C. L. Corporation Stockholders

Delbert Garman of the Bureau of Service of the Interstate Commerce Commission, also called by Examiner Ames, stated that he had examined the books of the L.C.L. Corporation at Wilmington, Del., during January, 1929. He found listed among that corporation's stockholders the following: M. J. Alger, F. H. Hardin, G. C. Woodruff, E. L. Smith and L. S. West. Upon consulting the "Pocket List of Railroad Officials," Mr. Garman continued, he found that persons with identical names were listed respectively as: Executive assistant to the president, New York Central; assistant to the president, New York Central; assistant freight traffic manager, New York Central; superintendent of dining car service, Cleveland, Cincinnati, Chicago & St. Louis; and shop superintendent, Merchants Despatch, Inc. In subsequent testimony Mr. Woodruff explained that the E. L. Smith who was listed as an L.C.L. Corporation stockholder was not the E. L. Smith who is the Big Four's superintendent of dining car service.

Mr. Garman also examined the books of the Universal and drew from them the revenue received by the forwarder for certain container movements, selected at random, for comparison with the revenue accruing to the handling railroads. This witness had also investigated the handling of containers for railway patrons, other than the Universal, at points where the crane facilities are leased to the latter. He found no evidence of discrimination, save in one possible case at Cleveland, where, however, there was no complaint.

Woodward T. Leech, president of the Leech Carrier Corporation of Buffalo, read into the record a description of a container and its handling facilities for which his company controls patents. In response to Examiner Ames he stated it to be his belief that the device would sell itself on its mechanical merits. He admitted, however, in response to counsel for the New York Central, that none of his proposed containers had been built but added that complete plans have been prepared.

#### Cincinnati Plan Advocated

Benjamin F. Fitch, president of the Motor Terminals Company, parent corporation of The Cincinnati Motor Terminals Company, read a lengthy statement in explanation of the l.c.l. interchange service which is performed by the latter concern for the seven railroads en-

tering Cincinnati. This service is a container operation limited to interchange among railroad stations. Mr. Fitch was represented by former Interstate Commerce Commissioners Robert W. Woolley and John J. Esch of the Washington firm of Esch, Kerr, Woolley, Newton & Shipe. It was the contention of this witness that the sore spot in l.c.l. freight service is the congested interchange terminal. He therefore recommended a substitution of the container for the trap car and a breaking of l.c.l. loads at outlying stations for container movement to off-track stations in congested metropolitan areas. For outbound l.c.l. freight he would move container loads from off-track stations to these outlying transfer points. At the latter the freight would be consolidated into merchandise cars for distant points.

The container in use at Cincinnati is an enclosed demountable truck body fitting a five-ton truck. In defending this size Mr. Fitch contended that the container should conform to the requirements of the motor truck. He held that the present container in use on the New York Central cannot be loaded two on a truck because of legal requirements. In developing this point the witness stated that the railroad should become the wholesale dealer of the truckman's retail volume. He suggested that truckmen could collect from the shipper and pay the railroad just as the railroads at Cincinnati now pay the transfer company out of their line haul revenue.

Questioned as to the desirability of a small container to meet the requirements of the small shipper Mr. Fitch stated that his company had patents on such a device but would not propose to use it nationally since he did not think it incumbent upon the railroads to provide packing economies for the shipper. He contended that the container in use at Cincinnati could be adapted to a line haul movement by placing two containers on a flat car and submitted drawings and specifications to explain this plan. He agreed, however, with Examiner Ames that his scheme would necessarily contemplate the intervention of a consolidating instrumentality between railways and shippers but thought nevertheless that the railroads could perform this forwarding service themselves through the medium of the Railway Express Agency, Inc.

Mr. Fitch concluded with the statement that his main proposition was a terminal one; he does not advocate containers in line haul operation but if they are to be used in line service he regards the container in use at Cincinnati, when it is equipped for placement on a flat car, to be the most suitable for such service.

#### Universal Witness on Earnings

In his rebuttal testimony Mr. Bockstahler of the Universal Car Loading & Distributing Company, first read into the record a statement of his company's business during the past six months. During July the average gross profit on freight handled in box cars was 19.83 cents per 100 lb., as against an average gross of 20.27 cents per 100 lb. on freight handled in containers; during August the box car figure was 20.37 cents and the container 20.84 cents; for September box car freight earned a gross of 20.86 cents per 100 lb. and the container 21.46 cents; in October the respective figures were 21.45 cents and 20.92 cents; November 20.42 cents, 20.29 cents; in December 19.99 and 19.04 cents.

During the six months the Universal collected a gross revenue of \$14,038,524.23. Of this total \$11,189,882.55 was paid to railroads and other cartage companies. The gross profit is computed after all transportation costs, whether rail, water or truck, are paid. Mr. Bockstahler

testified that of this gross profit, which averages around 20 cents per 100 lb., the station handling costs at each end of the line average about 7.5 cents per 100 lb. or a total of 15 cents; general overhead averages three cents per 100 lb., thus leaving a net profit of about two cents per 100 lb. The witness said that for the year 1928 the net profit per 100 lb. was a little less than two cents before interest, taxes and depreciation were deducted.

The inauguration of the container, according to Mr. Bockstahler, permitted the Universal to extend its operations to points where box car consolidations were impossible. Where both box cars and containers are operated, however, he admitted that the freight moving in containers is selected with a view to placing the higher-rated commodities in the containers.

#### Departures From Rate Explained

This witness next presented business records of the Universal which indicated several departures from the advertised rate. He was questioned at length in this connection by Examiner Ames and explained the reason for each departure. He contended that when a departure is made every shipper in a similar situation is granted the same concession, even though there be no general publication of the exceptions.

Following Mr. Bockstahler's testimony, Clyde Brown, general solicitor New York Central, who has represented that road throughout the proceedings, introduced contracts existing between the New York Central and the L. C. L. Corporation which manufactures the container in use on the lines of the former.

#### L. C. L. and Pennsylvania Negotiations

J. B. Large, general traffic manager of the Pennsylvania, was subpoenaed by the commission and appeared at the opening of the April 13 session. He testified that representatives of the L. C. L. Corporation at one time offered the Pennsylvania Company 50,000 shares of L. C. L. Corporation stock free of charge and 150,000 shares at a price less than the prevailing market price. He stated further that the container manufacturer offered the Pennsylvania a contract as good as that held by any other railroad if the Pennsylvania would introduce the L. C. L. container on its lines. In his rebuttal testimony on April 15, Mr. Woodruff, who testified at the opening session in Washington that he was vice-president of the L. C. L. Corporation, read a statement which outlined his negotiations with the Pennsylvania on behalf of the container concern. This statement said that several conferences were held with representatives of the Pennsylvania during the fall of 1928. It added that the Pennsylvania proposed that it be given 250,000 shares of L. C. L. Corporation stock, or one-half the total outstanding, if it agree to turn over patents and other properties, controlled in connection with the manufacture of the Keystone container, to the L. C. L. Corporation. Mr. Woodruff continued to say that the offer of 150,000 shares for Keystone patents and properties and of 150,000 shares at less than the market price, as testified to by Mr. Large, was in the nature of a counter-proposal. He added that the L. C. L. Corporation did not consider that it could use the Keystone properties but that the real consideration was the use by the Pennsylvania of the L. C. L. container. This latter was to be offered under a contract providing for rental on a mileage basis.

Presentation of the Erie case followed the testimony of Mr. Large. The first witness for this road was J. M. Condon, general manager, New York District. He testified that the empty cars now operating on the Erie

can easily handle its l. c. l. business and thus the container would tend to decrease its loading per car and, perhaps, increase its empty movement. He was followed by O. M. Meyne, assistant general freight agent, who introduced a series of exhibits to compare existing class rates with the present and proposed container rates. The first of these indicated that between New York or Newark and Rochester a 7,500 lb. container will cut the fourth class rate two per cent and 10,000-lb. container will cut this fourth class rate 13 per cent, but container rates will remain above fifth class rates; between New York or Newark and Syracuse a 6,500-lb. container will cut the fifth class rate two per cent and a 10,000-lb. container will bring this reduction to 19 per cent; between New York and Utica, N. Y., the fifth class rate is cut 4 per cent by the rate on a 5,000-lb. container and 30 per cent by a 10,000-lb. container shipment; between Cleveland and Philadelphia the rate on an 8,000-lb. container cuts the fourth class rate two per cent while a 10,000-lb. container brings the reduction to 10 per cent; between Cleveland and Pittsburgh the exhibit shows that a 4,000-lb. container will cut the fifth class rate 25 per cent.

For this latter movement Mr. Meyne testified that container rates cut all class rates, including the sixth class. Between New York and Philadelphia the container rate per 100 lb. when 10,000 lb. are shipped cuts the fifth class rate 58 per cent; between Wilkes-Barre and Syracuse, 40 per cent; between Buffalo and Wilkes-Barre, 30 per cent; between Rochester and Utica and between New York or Newark and Wilkes-Barre, 50 per cent. Between Wilkes-Barre and Cleveland, however, it takes a container load of 9,500 lb. to cut the fourth class rate one per cent and 10,000 lb. to cut this rate three per cent.

Comparisons similar to the foregoing are set forth in the exhibit for many other points to which container service operates in eastern territory. In only two instances do container rates remain above fourth class rates for all weights of container shipments. These latter are between New York or Newark and Cleveland, where it takes a container load of 5,500 lb. to cut the third class rate three per cent. A 10,000-lb. container will cut this rate 26 per cent. Identical reductions would also be made from third class rate by container shipments between New York or Newark and Erie, Pa.

#### Effect of Short Line Mileage

The second Erie exhibit was a statement showing freight charges based on present container rates as compared with similar charges based on short line mileage over the routes indicated. Between Baltimore and Cleveland, the exhibit set forth, the present container rate is based on a distance of 478 miles via the Pennsylvania. The short line route between these two points, via the Western Maryland, Pittsburgh & Lake Erie and Erie, would bring the mileage down to 452, with consequent reduction in container gross revenue if the container-mile charge was applied to the shorter distance. Between Wilkes-Barre and Syracuse, the container rate is based on a distance of 215 miles, via the Lehigh Valley and New York Central. The exhibit shows a short line mileage of 157 via the Delaware & Hudson and Lackawanna, and as in the former case it sets forth the reduction in revenue which would result from the application of the shorter mileage to the container-mile rate. The foregoing are examples of the data presented in this exhibit which also showed short line mileages between other points where container service is now in operation.

The third Erie exhibit compared present class rates with proposed container rates to the points in Central Freight Association territory. Like the other similar exhibit, comparing eastern class rates and container rates, this compilation shows the reductions in the same manner. A fourth exhibit also set forth the short line mileage between these points, where it is proposed to make the suspended container tariffs effective.

#### L. C. L. and Container Revenue Compared

The next exhibit, introduced by Mr. Meyne, compared the revenue accruing to the Erie from its l. c. l. business with the revenue which would accrue if the same freight were handled under existing container tariffs. This investigation covered the week ending March 9, 1929, and revealed that on freight moving over the Erie between New York and Binghamton, N. Y., Buffalo, Youngstown, O., and Akron, O., and Chicago container rates would have produced \$600.20 less than the Erie received under its regular l. c. l. class rates.

#### Average L. C. L. Rate Above Third Class

For the same week as was chosen for the foregoing exhibit, the final Erie exhibit set forth the average earnings per 100 lb. on the l. c. l. traffic handled. Testimony in connection with this exhibit related to the previous testimony of a Pennsylvania witness, who had argued for a container-mile rate which would approximate the third class rate. The data in this connection revealed that the average earnings on the Erie's l. c. l. business during the selected period were above the third class rate and if the third class rate were applied to this business the gross revenue would have been \$471.63 less.

In his closing testimony, Mr. Meyne outlined the attitude of the Erie to be one holding that container rates in effect and proposed are entirely too low for application in a class rate territory and constitute a grave menace to the class rate structure. Carload rates, he added, are cut in many instances, and while the Erie has no objections to the container as a mechanical device it does protest the continuation of existing container rates.

#### The Lackawanna

The Lackawanna, through the testimony of M. Williams, general freight agent, also offered exhibits to substantiate its protest against the container rates. The first of these was an analysis of the Lackawanna's westbound billing for December 22, 1927, from New York and nearby New Jersey stations to points where container service is now available. It assumed a container movement of this freight on the basis of 6,000 lb. per loaded container and calculated that such a handling would have resulted in a 42 per cent shrinkage in revenue. The exhibit also indicated that 1.7 per cent of the freight would have been one-and-a-half times first class, 61.7 per cent first class, 22.8 per cent second class, and 13.8 per cent Rule 25 class.

A like exhibit set forth the westbound billing on the same day to points where it is proposed to extend container service. The assumed container movement in this latter case would have resulted in a 35.9 per cent shrinkage in revenue. A third exhibit submitted by Mr. Williams was a statement showing a tonnage of magazines which formerly moved over the Lackawanna but which is now moving over the New York Central or Lehigh Valley. This statement indicated that a 7,000-lb. container of magazines from New York to Buffalo, Rochester, Syracuse or Utica would yield a gross reve-

due ranging only from 50 to 74.6 per cent of the carload rate on magazines and from 34.9 to 51.5 per cent of the l. c. l. rate.

#### Traffic Lost

The witness also introduced a statement comparing the Lackawanna traffic from New York City and nearby stations to Buffalo, Syracuse, Rochester and Cleveland during March and April, 1927, with the movement to the same points during the corresponding months of 1928. The figures for March, 1928, indicated a reduction of 672 tons from the previous year, while tonnage handled in April, 1928, was 965 tons less than in April, 1927. In cross examination on this point Mr. Williams did not claim that the container got all of this lost traffic but admitted that some of it may have gone to the consolidated box cars. He did not, however, think that the trucking in lieu of lighterage practices of the New York roads was responsible for the loss as suggested by counsel for the New York Central.

#### Loading Test Indicates Selection of Freight for Container Handling

The final Lackawanna exhibits set forth the result of a loading test, performed on box cars, and worked out a factor of pounds per cubic foot to apply to the 438 cubic feet of the L. C. L. merchandise container. These cars were loaded with the general run of l. c. l. freight. From the first group of ten, a loading per cubic foot of 8.628 lb. was attained. This figure, applied to the 438 cubic feet of the L. C. L. container, would indicate a container load of 3,779 lb. Remaining tests, worked out on the same basis, indicated container loadings ranging from 3,987 lb. to 4,904 lb. From this, Mr. Williams deduced, that much picking and choosing of freight would be necessary if the claimed loading of containers were to be attained. The container, he held, takes the heavier loading and leaves the light and bulky commodities to be handled in box cars.

Following Mr. Williams' testimony, D. T. Lawrence, chairman of the Official Classification Committee, presented the comparisons of class rates and container rates which Examiner Ames had requested of him at an earlier session. This exhibit was similar to those presented by the New Haven, the Erie and Chairman Fyfe of the Western Classification Committee.

#### New York Central

At the closing session on April 15, Mr. Woodruff in addition to his testimony regarding L. C. L. Corporation stockholders and the negotiations of the L. C. L. Corporation with the Pennsylvania, submitted a series of exhibits relating to the New York Central's container operation. This witness considered it more important to increase net revenue than to maintain a beautiful mathematical rate compilation, which does not produce the net revenue received from container operation. He held that experience does not bear out these mathematical criticisms. He announced that the Baltimore & Ohio had entered a contract with the L. C. L. Corporation on February 25, 1929, subsequent to the opening hearings at Washington. This contract related to the use of containers on the B. & O. at a rental the same as that paid by the Lehigh Valley.

Mr. Woodruff was cross examined at length by Examiner Ames on the question of whether the container rate was a carload rate or a less carload rate. The witness held it to be the latter. He stated, in conclusion, that there had been no requests from carload shippers for a reduction of carload rates to the container basis.

William J. Carlos, who is in charge of l. c. l. freight handling at the Lehigh Valley's Newark station was the final witness. He testified that there had been little change in the total l. c. l. traffic moving through his station since the inauguration of container service on the Lehigh Valley. He explained that the normal growth of business had offset any loss to the container, but added in response to a cross examiner that the box car business between Newark and Buffalo had been lost almost completely to the containers.

When Examiner Ames asked the attitude of counsel for the New York Central and Lehigh Valley with reference to a voluntary further suspension of the proposed container rates, pending the preparation of a tentative report, these counsel made no definite statement but requested time for conference with the management of their respective roads.

## Minister of Railways Approves Montreal Terminal Plan

THE Minister of Railways of Canada, Hon. Charles A. Dunning, has signified his intention of submitting a bill to Parliament authorizing the government to guarantee \$50,000,000 of bonds of the Canadian National, the proceeds to be used to provide new passenger terminal facilities in the City of Montreal. The report of the government's consulting engineer, Frederick A. Palmer, was reported in the *Railway Age* of March 9, 1929, page 583. Mr. Palmer advised that the Canadian Pacific should also participate in the project, but that company, in view of the modernity and adequacy of its existing facilities, elected not to do so.

The original plan, therefore, was adhered to and the guaranty of the bond issue to be recommended by the Minister of Railways will cover the major part of the C. N. R. expenditure, which may in total somewhat exceed this authorization. The Minister's announcement came after he had received a deputation of representatives of Montreal civic and commercial interests who urged early action on the terminal situation. To these delegates the Minister explained the complexity of the negotiations necessary to reach an agreement, because of the many interests involved:—The Dominion Railway Board, on account of the abolition of grade crossings; the Ministry of Marine because of the relation of the work to Montreal harbor; the Ministry of Railways and Canals, since the Lachine canal is to be crossed; and the Montreal municipal authorities, because of the many phases of the project regarding which their wishes must be met.

Since the Minister of Railways is a member of the Cabinet and since the Cabinet is made up of the leaders of the party in power in the House of Commons, it may be assumed that the proposal to authorize the work to proceed has a good chance of relatively early passage, so that actual work on the project might be undertaken this summer—although some opposition might develop either in the House or the Senate which may delay it.

The terminal project is designed to correct several unfavorable conditions under which the C. N. R. now operates in Montreal, among which are the antiquity and inadequacy of the present facilities and their relatively unfavorable location, and the problem of grade crossings and the separation of facilities (the company now has four widely separated passenger stations in the city). The new terminal project is designed to solve all these problems, to improve service to patrons, to provide convenient transfer with all intra-city transportation lines

and to utilize to the full the development of "air rights" over the terminal.

A summary of the development of the terminal plan, made public by the railway, follows in abstract:

### City's Problems, as Well as Railways', Considered

When the Canadian National Railways submitted to the Board of Railway Commissioners for Canada recommendations for the proposed terminal development and grade separation at Montreal, including a new central passenger station, the responsible officers had prepared for the task by extensive studies and surveys, not only of the company's own direct problem, but also of such problems as immediately affect the city itself in relation to street traffic movements, areas of congestion and probable future developments. The terminal proposals were not prepared having only in view the requirements of the railway as regards to the daily movement of long distance and local travelers, but were established upon a definite policy laid down by Sir Henry Thornton, chairman and president; S. J. Hungerford, vice-president in charge of operation and construction, and put into form under the direction of C. B. Brown, chief engineer of operation. Briefly, this policy called for the fullest consideration of all questions involved in proposals submitted to, and raised by, various parties having for their purpose amelioration of existing street traffic conditions in the particular district of Montreal in which the proposed station would be located and the approaches thereto, and, also, proposals for new arteries to take care of anticipated growth and expansion.

One of the first subjects to be considered was the actual service rendered in the transportation of passengers by the Canadian National by means of its steam and electric lines. During a twelve-month period there arrive and depart from the existing four city stations of the C. N. R.—Bonaventure, Tunnel, Moreau and McGill Street—approximately 7,000,000 passengers. Of that total more than 4,000,000 use the steam lines, while a number close to 3,000,000 are served by the electric lines of the system.

The engineers approached their problem with a realization not only of the City of Montreal of today, possessing a population within its metropolitan area of one million people, but of the steady growth which is proceeding within the city and vicinity. New York is, naturally, regarded as the great example of municipal expansion on this continent, and in gathering data applicable to the terminal plans attention was paid to the rate of increase in that city. Over a six year period the population of New York increased annually  $3\frac{1}{2}$  per cent. During the similar six year period the population of Montreal increased  $4\frac{1}{2}$  per cent per annum, clearly indicating that prognostications regarding the future population of Montreal have been made on a sound basis in fact.

### Planning for Years to Come

With these facts before them, the engineers set to work to prepare plans of comprehensive character, allowing full provision for the factors of increasing population and the changing center of population. These plans of approach and exit have been made in such manner that it will be possible in the coming years to establish in Montreal through and local services, suitable to traffic requirements. The plan gives adequate station service outside of the main terminal. For instance, the commuters traveling across Victoria bridge from the south shore need not go into the terminal station, but will be enabled to leave the train at a station on Haymarket Square. Passenger facilities will also be available behind the mountain at Cartierville, St. Laurent and Mount Royal, with similar provision in the eastern quarter of the city in Maisonneuve. All passenger trains will be drawn by electric locomotives, a definite contribution towards the clearing of the atmosphere over Montreal.

Innumerable advantages in operation will follow the inauguration of a central station, such as unimpeded access and exit through a more even distribution of the traffic, the elimination of "bottle-necks" and delays at grade crossings.

### Station Entrances on Many Streets, High and Low Level

As to the station itself, it will possess convenient entrances and exits serving all points of the compass and providing means of reaching either the upper level at St. Catherine Street or the lower level at St. Antoine Street, and with convenient access from Cathcart, Dorchester and La Gauchetière streets. The terminal facilities for the reception of passengers, baggage, mail and express will be complete and no detail has been overlooked in the effort to make the building not only a

handsome structure but one designed for the fullest possible service to the traveling public and the citizens of Montreal.

The policy followed was not to provide a mere terminal but to fit in a structure in harmony with the requirements of a growing metropolis. The plans provide for the disappearance of every grade crossing effecting passenger train service within the limits of the City of Montreal, west of Longue Pointe. [The summary then outlines in detail the numerous street widening and other improved street traffic projects which the plan provides for.]

Contingent on the construction of the central terminal and the relinquishment of Bonaventure Station as a passenger terminal, vast improvements are planned for the freight traffic situation. The present freight facilities at Bonaventure Station are admirably located, but they are susceptible of considerable betterment, benefiting alike the shipper and the railway. Other improvements which are included in the general scheme provide for a better entrance to the harbor railway tracks from the west end, which will expedite the handling of overseas trade.

## Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended April 6 amounted to 956,364 cars, an increase of 37,012 cars as compared with the total in the corresponding week of last year and an increase of 2,457 cars as compared with loading in the corresponding week of 1927. Loading of all commodities, excepting grain, was larger than a year ago. The totals for coal, ore and livestock showed decreases as compared with 1927. Loading in all districts was larger than in the corresponding week of last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading  
Week Ended Saturday, April 6, 1929

Districts	1929	1928	1927
Eastern .....	225,598	218,162	221,427
Allegheny .....	198,428	189,644	202,242
Poconos .....	49,967	47,858	57,195
Southern .....	157,578	155,609	161,873
Northwestern .....	113,076	111,209	113,985
Central Western .....	131,863	124,142	126,504
Southwestern .....	79,854	72,728	70,681
Total Western Districts .....	324,793	308,079	311,170
Total All Roads .....	956,364	919,352	953,907
Commodities			
Grain and Grain Products .....	35,707	39,371	35,434
Live Stock .....	23,618	23,340	26,437
Coal .....	134,178	134,163	152,467
Coke .....	11,870	9,812	11,863
Forest Products .....	69,217	65,647	69,114
Ore .....	11,124	9,144	11,627
Merchandise L.C.L. ....	266,887	263,317	266,516
Miscellaneous .....	403,763	374,558	380,449
April 6 .....	956,364	919,352	953,907
March 30 .....	967,029	948,743	986,462
March 23 .....	960,698	950,194	1,003,536
March 16 .....	957,460	942,572	1,001,932
March 9 .....	945,770	951,556	1,000,754
Cumulative total, 14 weeks .....	13,103,044	12,711,548	13,495,032

The freight car surplus during the period ended March 31 averaged 279,107 cars, as compared with 261,290 cars on March 23. The total included 136,452 coal cars, 95,429 box cars, 27,182 stock cars, and 10,792 refrigerator cars.

### Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended April 6 totalled 63,411 cars, an increase over the previous week of 1,959 cars and an increase over the same week last year of 6,995 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
April 6, 1929 .....	63,411	43,588
March 30, 1929 .....	61,452	43,907
March 23, 1929 .....	66,361	47,112
April 7, 1928 .....	56,416	41,109
Cumulative Totals for Canada		
April 6, 1929 .....	868,591	604,550
April 7, 1928 .....	873,759	557,578
April 9, 1927 .....	850,855	547,272



Above: Sun Room



Right: Exterior View Showing Enclosed Observation End



Above: Barber Shop

Top Center: Beautifully Furnished Parlor-Observation Room

# Lounge Cars for the Rock Island

*Highly attractive and completely-equipped modern cars to be used in Chicago-Denver service*

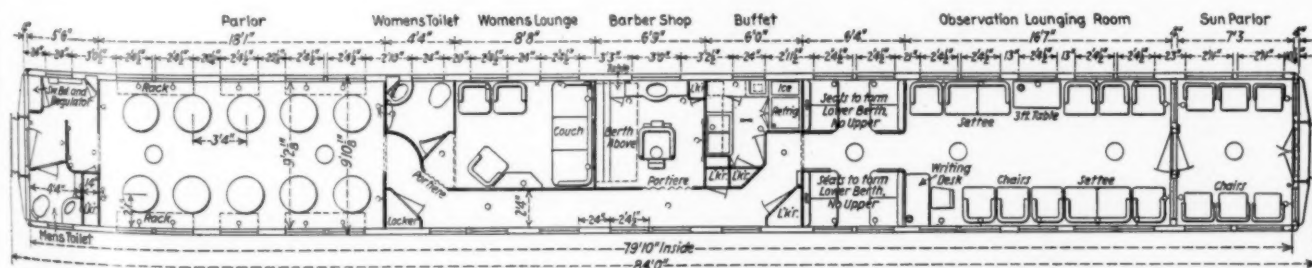
THE Chicago, Rock Island & Pacific has recently received from the Pullman Car & Manufacturing Corporation, four modern lounge cars for service on the Rocky Mountain Limited trains of this road between Chicago and Denver, Col. These cars, notable for the beauty and comfort of their interior equipment, and conforming to the latest modern standards, contain an observation room, sun room, ladies' lounge, parlor compartment, buffet and completely-equipped soda fountain and barber shop. The furniture represents a complete departure in design and upholstery and gives an impression of refinement and luxury commonly found in only the most exclusive clubs and hotels. The interior color scheme and the design of such details as the seat coverings, basket racks, ventilating grilles, clock, cigarette lighters, etc., are all especially designed for these cars, which contain practically every device contributing to travel luxury.

The car trucks are of the Commonwealth one-piece, six-wheel pedestal type, with straight equalizers and inside side bearings. Arrangements are made for the ap-

plication of roller journal bearings later, if desired. Braking power is transmitted to the truck wheels through Simplex type clasp brakes.

The 84-ft. car body is of the typical Pullman built-up construction, with cast steel buffers. Completely equipped with the trucks in place, the car weighs slightly over 83 tons. The top deck is round, a clear-story ceiling effect being provided in the interior similar to that used in the new Rock Island diners placed in service a few months ago. Advantage has been taken of the full length of the car for interior space, platforms having been eliminated. Double wood sash with Edwards weather stripping are used at all windows except in the sun parlor which is equipped with single drop sash. Vapor steam heat with thermostatic temperature control is provided. An adequate supply of fresh air is secured by means of 17 Mudge roof ventilators. The six safety ceiling fans and all lighting fixtures throughout the car were especially designed and furnished by the Safety Car Heating & Lighting Company.

Referring to the drawing, it will be observed that the



Floor Plan of the New Lounge Car Built for the Rock Island by the Pullman Car & Manufacturing Corporation

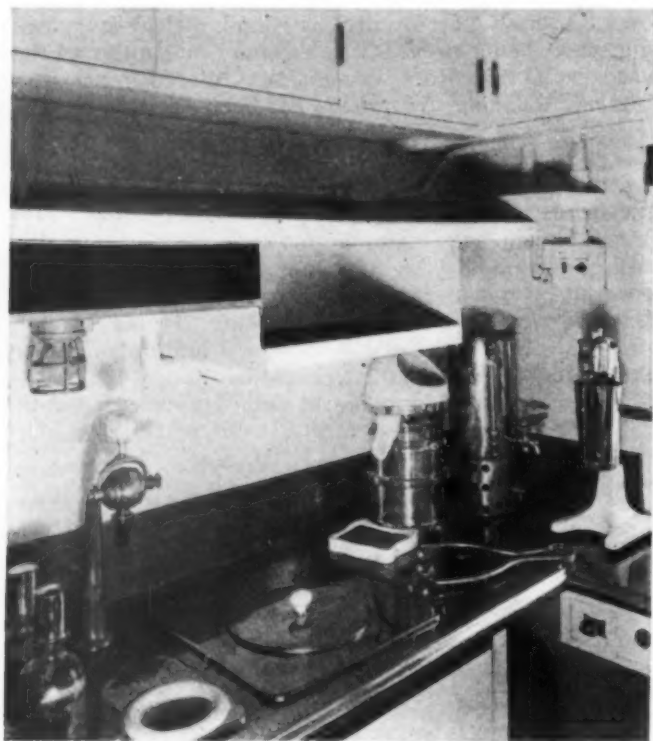


One Corner of the Ladies' Lounge

sun parlor occupies 7 ft. 3 in. in one end of the car, being equipped with six wicker chairs. The sun room walls are finished in a creamy green, the ceiling being a lighter shade than the side walls. The wicker chairs are upholstered in a green and gold striped material. The window draperies are a cretonne shadow print with a green background predominating throughout the design. The floor covering is a green and white marbled rubber tiling, over which a rug, matching the carpet in the rest of the car, is applied.

#### The Observation Lounging Room

The observation lounging room, 16 ft. 7 in. long, has a seating capacity of 13, being equipped with unusually comfortable chairs and settees, upholstered in materials of different fabrics and color, all of which, however, harmonize with the general color scheme. Adjacent to the observation lounging section, and included within the room itself, are two Pullman lower



View Showing Modern Buffet Equipment

sections, provided with hooks and curtains for use when necessary.

The interior decorative treatment of the observation room is Spanish, making use of green stippled side walls and natural walnut window and door trim. The seat coverings consist of three different types of fabrics, a striped material, a figured material and a plain fabric, all with harmonizing shades of green predominating. The window shades are of silk-faced pantasote. A special grade Axminster carpet covers the floor, the general color of the carpet being a tan with a great variety of blues, rose, green and brown scattered throughout.

The center of the car is occupied by a 6-ft. buffet, equipped with a soda fountain, hot water urn, fruit juice extractor, electric drink mixer, sink, garbage chute, lockers and refrigerator which is arranged to be iced from the roof. Anything that can be obtained at an up-to-date fountain can be secured from this buffet simply by pushing a button which indicates on the annunciator where the service is desired. An exhaust fan in the buffet contributes to the comfort of the attendant, particularly in hot weather, and prevents odors from being transmitted to the other rooms in the car. The fully-equipped barber shop occupies a length of 6 ft. 9 in., adjacent to the buffet. The barber shop walls are painted a soft green, with the ceiling of a lighter shade. The floor covering is of green and white marbled rubber tiling. The barber's chair is white with a green leather seat.

#### Women's Lounge Tastefully Decorated

The women's lounge is inviting both from the standpoint of comfort and tasteful appointments. The window trim is of natural walnut of Spanish design, the walls being painted an orchid rose and the ceiling a much lighter shade of the same color. The same window shade material is used as in the observation room. Draperies are of a two-tone rose-colored silk damask. The seat covering is of gray and rose. The same carpet is used as in the observation room. The women's lounge is equipped with an electric cigarette lighter, as is the observation room. An attractive walnut-framed mirror of Spanish design is placed on the bulkhead with an electric light fixture on either side. The deck rail decoration is hand painted of a floral design.

The interior design of the 18-ft. parlor section is also of the Spanish type, but a little different window treatment is given from that used in the observation room and women's lounge. The window trim is of natural walnut, the walls stippled in tan and the ceiling in a lighter shade of the same color. The 10 revolving parlor chairs are upholstered in two fabrics of little different design, but both are of taupe coloring. The carpet and window shades are the same as used in the other rooms. Attractive basket racks, placed above the windows, match the specially designed ventilating grilles in the upper deck.

THE LOUISVILLE & NASHVILLE has brought suit in the United States District Court at Birmingham, Ala., for \$5000 damages sustained by the road when one of its locomotives was run into by an automobile at Twenty-fourth street, Birmingham. The suit is brought against C. M. Scott, E. E. Churchwell and W. Laminack, who, it is alleged, were engaged in a joint enterprise and wantonly caused or allowed their automobile to collide with the locomotive. Besides the damage to the locomotive, seven box cars were damaged, three of them beyond repair.

# Modern Locomotives for Secondary Service\*

*The author proposes a design for all-around service to replace the accumulation of misfits handed down through the years*

By W. E. Woodard  
Vice-President, Lima Locomotive Works, New York

THE term "super-power locomotives" has come to mean a well-defined class of railway motive power. Enough of these locomotives have been purchased and placed in operation by various railways all over the country to establish in the minds of railway people their general characteristics. These may be summed up as follows: Boiler pressure, 225 to 275 pounds; large grate area, giving low combustion rates; limited cut-off; booster; Type E superheater; feedwater heater.

Locomotives embodying these characteristics have made such pronounced reductions in fuel consumption and increases in gross-ton-mile output, along with lower maintenance, that these principles of construction are now very generally accepted by the leading railroads as essential to locomotives designed for producing maximum tonnage output with minimum operating costs.

A brief survey of what super-power locomotives have already accomplished, and by what means, is a fitting introduction to a discussion of a possible extension of their use into a new field. This survey is a resume of the various road tests of the Lima A-1 locomotive and some of the 200 engines generally duplicates of this locomotive.

Low rates of burning coal in the firebox have benefited steam production. Higher boiler pressure with limited cut-off has had a marked effect in reducing the

The final results in operating economy which such locomotives actually show are set forth in Table II.

Because these results are of such significant values, are so marked, and have been proved time after time on many different roads operating under widely vary-

Table II—Comparison of Operating Results of Old and New Locomotives, Based on about Nine Months' Service

	Old locomotives	Super-power locomotives
Gross ton-miles (based on actual train mileage) .....	2,435,000,000	
Trains per day .....	72	54
Train-miles per day .....	5,810	4,350
Number of locomotives .....	59	42
Total operating cost .....	\$3,107,060	\$2,342,470
Annual saving by super-power locomotives .....		\$764,590

ing conditions, we have been led to ask this question: Can not these same principles of design be applied with equally satisfactory results to the large class of motive power which is used in secondary service?

## Character of Present Secondary Power

Most of these locomotives have found their way into this class of service because of being displaced from main lines by more efficient and heavier locomotives. Thus, the older and lighter engines have been relegated to secondary service as the primary or main-line power has been developed and improved.

In this process of reassignment many roads have reached the limit to which they can move down the older and less efficient locomotives. This is because further reassignment of displaced main-line power would involve bringing up the track and bridges of feeder and branch lines to main-line standards if any more displaced main-line power is to be used on secondary lines. It is obvious that to reconstruct branch and secondary lines so as to be capable of taking the heavy main-line power which is displaced would in most cases be entirely prohibitive in cost. For this reason, many systems are now handling all their secondary service with these older, wasteful types with no prospect of improving operating results in this general class of locomotives. Even when this condition has not been reached, the secondary service locomotives present a serious operating problem; they are of a great variety of types bought at widely different periods; their wearing and renewable parts are not standardized, involving a serious stores and parts problem; oftentimes they were originally designed for specific main-line operating conditions and are not suited for all-around general service. It is for these reasons that the time seems opportune to make a serious study of the secondary class of service with a view of pointing out the advantages to be derived from treating the great number of small, light

Table I—Combined Effect of Increased Boiler Pressure, Limited Cut-Off and Low Combustion Rates on Power Output and Coal Consumption

POWER OUTPUT FOR EQUIVALENT COAL CONSUMPTION	Mikado	A-1 (2-8-4) Type
Coal per hour .....	6,000 lb.	6,000 lb.
Rate of combustion .....	90½ lb.	60 lb.
Steam produced per hour .....	42,600 lb.	48,000 lb.
Drawbar horsepower (average over the division) .....	1,352	2,028
COAL REQUIRED FOR EQUIVALENT POWER OUTPUT		
Drawbar horsepower .....	1,600	1,600
Steam required per hour .....	47,500 lb.	40,500 lb.
Dry coal per hour .....	7,100 lb.	4,750 lb.
Combustion rate .....	107 lb.	47½ lb.

amount of steam used in the cylinders for a given amount of work. The combination of these two factors react one upon the other to produce the results shown in Table I.

The booster also plays an important part in the combination of elements mentioned by providing a balance between the starting tractive force of the locomotive and the increased tractive force at speeds produced by the limited-cut-off cylinders operating with high pressures. Stated in somewhat different form, the booster enables a limited-cut-off locomotive to start easily a train which it is capable of pulling at high speeds under average operating conditions.

\* Abstract of paper presented before the New England Railroad Club, Boston, Mass., April 9.

locomotives assigned to this class of work in the same way in which the locomotive problem has been attacked for main-line operation.

Everyone is aware that the number of these older, secondary-service locomotives is large, but the magnitude of the problem is shown by an actual check of the number on two large railroad systems. We listed all of the road engines on these two systems which could with advantage be replaced by one single class of general-service locomotives of 52,000 lb. wheel load and found the following: On one system the secondary service locomotives comprise 33 per cent of its road power and the average age of these locomotives is 21 years. They are divided among 11 varying types. On the other system the secondary locomotives comprise 30.6 per cent of its road power and the average age of these locomotives is 19.7 years. They are divided among seven varying types.

Among these many types of old engines used in secondary service, there are a few characteristics which are common to them all: High maintenance; high coal consumption; limited utility; lack of standardization. They waste part of the money that improved motive power units are making in main-line operation.

#### Possibilities of a Single All-Around Design

It is perfectly possible to replace practically all of these old and often obsolete types with one single design of locomotive. This engine would be a locomotive with light wheel loads which is capable of going anywhere that secondary-service locomotives now go. It would be a general utility locomotive which could be used on branch-line freight, main-line fast freight, or in passenger service if needed. The general form of such a design is shown on the drawing.

This design embodies the same characteristics that have proved their worth in the main-line super-power locomotives. The boiler pressure is 250 lb., with limited cut-off, which gives power at speed as well as economy of steam. The firebox is of the same proportion rela-

tive to the boiler as in modern heavy power. Because of the limited wheel load for which the engine is designed, the use of a four-wheel trailer is required. Either Type A or Type E superheater can be used.

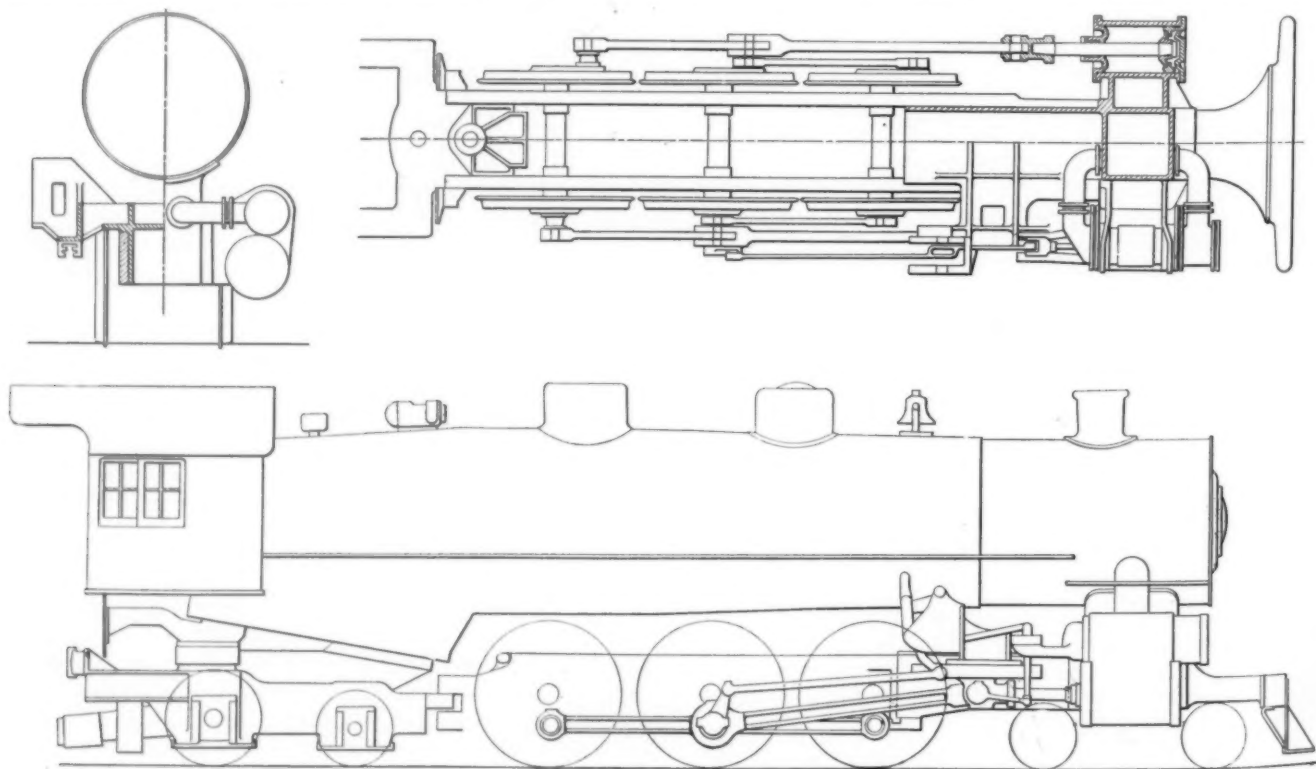
These are the essential elements in locomotive design which produce power output at speed with economical performance. Objection may be raised that such provisions are not warranted in the class of service to which secondary locomotives are generally used and that full advantage cannot be taken of these power-producing elements. The answer is that they are equally as useful in promoting economical operation as in producing high power output. And, moreover, we believe it will be found that such characteristics are highly desirable in a general service locomotive.

This locomotive is designed to have a high factor of availability; that is, it can be used in many kinds of service—even in passenger service if needed, as well as in main-line manifest freight and secondary-line freight service. Consequently, with a locomotive available and suitable from an operating and economical performance standpoint, such a locomotive can be kept in service a far greater amount of time than can the locomotive now generally assigned to secondary service. That is, it will be perfectly feasible to run such a locomotive in secondary-line service on a day run and then send it out over the main line in passenger or manifest freight service at night. Such operation is impractical with the ordinary secondary power now in service, because it is unsuited to such varying service conditions and is therefore assigned to a specific run.

Thus this design makes it possible to secure the same intensive utilization of the secondary power units as is now obtained of the main-line power units.

#### Maintenance Will Be Reduced

Moreover, in this design special thought has been given to the problem of maintenance. The locomotive has only three pairs of drivers and records on many roads indicate that locomotive maintenance bears a fairly definite relation to the number of driving wheels.



The Proposed Locomotive for Secondary Service

The rigid wheel base is short and, therefore, tire wear and lateral play maintenance will be at a minimum. The driving wheel diameter is 69 in., which means for any ordinary service a relatively low piston speed and far less wear and tear on reciprocating and valve motion parts than on the class of locomotives now used in secondary service.

It will be noted that in this design we use the unitary machinery support, to which I would like to refer in some detail. The unitary machinery support comprises the two cylinders, the guide support, valve motion support, front bumper bracket, and connection to the main frames—all in one casting. Moreover, by utilizing the principle of the tandem main-rod drive, the cylinder cross-centers are materially reduced.

The guides are moved slightly ahead of their ordinary position, so as to clear the pin and rod on No. 1 driving wheel. The main rod is connected to the second driving wheel and, on account of using the tandem-main-rod drive, the force required to turn No. 3 drivers is transmitted directly to them without going through the main side pin, as is the case with the ordinary rod arrangement. This leaves the main side pin with only one driver to turn, thus making it possible materially to reduce the length of this bearing. By this method the cylinder cross-centers can be reduced to 85 in., a reduction of 3 in. from the normal cross-centers on an engine of this piston thrust.

By this construction all the engine parts—that is, the cylinders, guides, and valve motion—are held in rigid and fixed alignment. The connections to the main frame are very secure and easily inspected and maintained. The bending moments on main pins, axles, and driving boxes are materially reduced because of the reduced cylinder centers.

The general dimensions of such a locomotive as I have been describing are shown in Table III.

#### A Fair Comparison

The great advantages of a general service locomotive of this type can be illustrated by a comparison with a typical 2-8-0 locomotive built about twenty years ago. Many of these Consolidations still remain in service and they represent a class of secondary power by no means as inefficient and obsolete as some other types

Table III—Table of Dimensions, Weights and Proportions of the Proposed Locomotive for Secondary Service

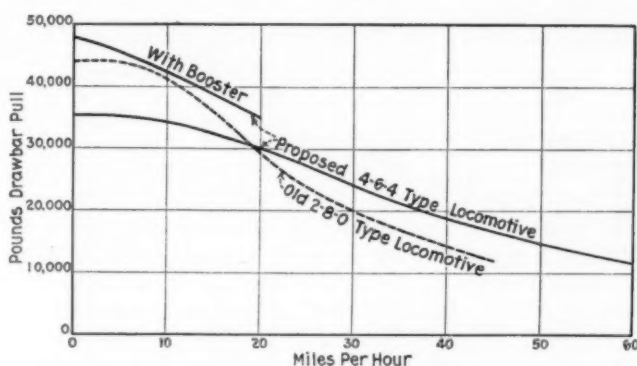
Traction force, engine .....	38,200 lb.
Traction force, with booster .....	50,700 lb.
Weight of engine .....	308,000 lb.
Weight on drivers .....	156,000 lb.
Tender:	
Water capacity .....	10,000 gal.
Fuel capacity .....	15 tons
Wheel base, engine and tender .....	73 ft. 4 in.
Cylinders, diameter and stroke .....	22 in. by 28 in.
Maximum cut-off .....	60 per cent
Driving wheels, diameter .....	69 in.
Steam pressure .....	250 lb.
Grate area .....	67 sq. ft.
Total heating surface .....	3,435 sq. ft.

still in that service. Stated in a little different way, I am choosing for comparison a fairly good example of secondary-service locomotives and thus favoring the old engines, rather than otherwise.

These two locomotives have approximately the same wheel loads. The 4-6-4 not only possesses an advantage over the Consolidation in actual starting tractive force and at speeds, but by reason of the larger wheels can be utilized for a far greater range of service than the older engine. It is truly a general service locomotive, which statement does not hold for the 2-8-0 class. In other words, the 4-6-4 affords an engine with a high factor of availability without sacrificing a single charac-

teristic affecting train operation. Again, the 4-6-4 will make significant reductions in fuel and maintenance.

Road tests comparing super-power locomotives with older types fully justify the statement that the 4-6-4 will reduce coal consumption 30 per cent to 50 per cent. These figures are borne out by numerous fuel records in which the total fuel used by two classes of locomotives



A Comparison of the Tractive Force Characteristics of a 2-8-0 Type Locomotive and the Proposed 4-6-4 Type Locomotive for Secondary Service

tives is compared over long periods. The maintenance of well-designed modern locomotives is materially lower than the older types used in secondary service. For example, actual maintenance figures on a class of locomotives very similar in general characteristics to the 4-6-4 I have shown, but with heavier wheel loads, shows a reduction of one-third in maintenance costs from the Consolidation type. This reduction is on the mileage basis, but when the greater availability of the 4-6-4 class is considered, with the resulting reduction in total number of engines required, there will be a much larger reduction in the total maintenance costs.

#### Will the Investment Be Justified?

Whenever new locomotive units are considered, the question of cost and return on investment become the paramount issue. As to cost, these facts should be borne in mind:

The railroads are now buying "power". Mere ability to drag cars at slow speed no longer is the measure of the earning power of a locomotive unit. It must do more. It must pull cars at a rate of speed to produce the maximum tonnage movement over a certain division

Table IV—Return on Investment in Modern Locomotives, Based on Six Months' Operation

	Road "A" Mountainous		Road "B" Level	
	Super-power locomotives	Old locomotives	Super-power locomotives	Old locomotives
Total operating cost per 1,000 gross ton-miles	96 cents	\$1.28	33¼ cents	50½ cents
Annual saving per locomotive	\$18,200	.....	\$22,200	.....
Approximate return on investment from savings	18 per cent	.....	22 per cent	.....

in a given time. When the time element is introduced the requirement becomes a power requirement and on that basis the price should be considered. Gross ton-miles per hour is the railroad manner of expressing this requirement.

In the final analysis it is the earning power of a locomotive which tells the story. To be worth while it must show an adequate return on its price. Super-power locomotives are doing this. They not only show a handsome return on investment based on the savings effected, but by reason of the increased capacity which they add to the railroad they greatly expand the revenue-earning possibilities of the transportation plant.

# Southern's Operating Expenses Are Lower

*Decline to lowest total since 1922 while 1928 freight earnings are virtually same as in preceding year*

THE Southern Railway in 1928 held its operating expenses down to a figure lower than that of any year since 1922. In 1928 operating expenses were \$101,887,718 or 4.9 per cent more than in 1922, while operating revenues were \$144,116,452, or 12.2 per cent greater. The 1928 total of operating revenues was exceeded in 1925, 1926 and 1927, while the revenue ton-miles of 1928 were exceeded only in 1926 and 1927. Freight revenues in 1928 were but 0.6 per cent lower than in 1927 and only 3.7 per cent lower than in the record year 1926.

## A New Standard of Freight Traffic Volume

Table I, which gives selected earnings and freight traffic statistics since 1917, reflects the great increase in efficiency and in traffic, and the consequent improvement in earnings which the Southern has attained since the war.

The great impetus first came in 1923 when revenue ton-miles increased almost 25 per cent over the preceding year, establishing a new standard for the volume of this company's freight business. Showing conclusively that the Southern's traffic is now on a new level is the fact that in only one year since 1923—i.e., 1924—has the volume of freight traffic failed to exceed the total of that year. The increasing industrial expansion in its territory, which the Southern Railway has fostered in many ways, has, of course, been largely responsible for this increase in traffic.

The company, however, has not permitted the attention which it has had to give to meeting the needs of a heavier

volume of business to divert it from a successful effort to increase the efficiency of its handling of this business. The annual report of the company for 1928 makes some interesting and significant comparisons of some of the indices of operating efficiency in 1928 with those of 1924. Last year the gross ton-miles per freight train-hour were 21 per cent higher than in 1924, cars per freight train were 15 per cent greater, average tonnage per freight train, 9 per cent more. Freight transportation expenses per thousand gross ton-miles declined 21 per cent, comparing the latter year with the former; loss and damage claims decreased 28 per cent; overtime payments to train and engine crews were reduced 23 per cent and coal consumption per thousand gross ton-miles, 12 per cent.

## Increase in Equipment Investment 35 Per Cent

Toward securing improvement in operating efficiency, the company has made liberal capital expenditures. Since 1923 the investment in road has increased by \$48,170,117, or 13.6 per cent, and the investment in equipment \$37,918,902, or 35.2 per cent. In the annual report for 1923, President Harrison stated that the benefits to be derived from liberal expenditures for new cars and locomotives had been strikingly demonstrated. This policy the company has continued since that date and in the years 1923-28 purchased 179 locomotives, 161 passenger train cars and 15,200 freight train cars.

On January 1, 1929, the Southern had 1,454 freight locomotives with an average tractive effort of 47,993 lb.—or a total tractive effort of 69,782,800 lb. This represented an increase in a five-year period of 4.3 per cent in the number of freight locomotives, 12.9 per cent in total tractive effort and 8.3 per cent in average effort per freight locomotive.

Improvements to roadway and structures in the five-year period also have been important. Among the more outstanding construction projects which have been completed may be mentioned the following:

The John Sevier freight terminal near Knoxville.

New shops at Birmingham and Spartanburg.

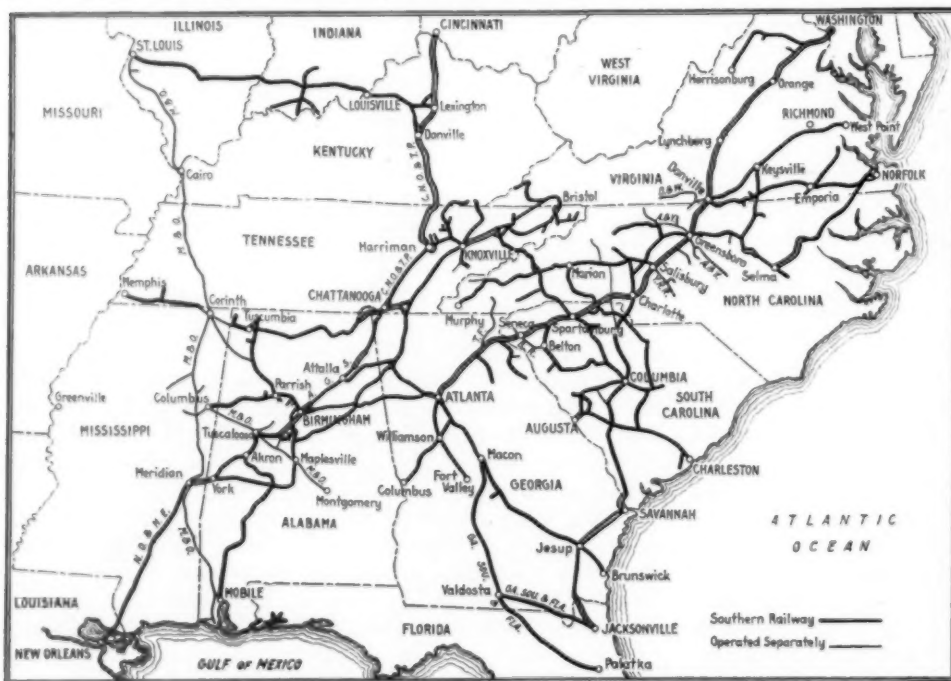
A 17-mile cut-off from Bulls Gap, Tenn., to Leadville.

A cut-off to handle traffic around the city of Knoxville.

A belt line at Spartanburg, S. C. Shop facilities and an engine terminal at Atlanta.

An extensive program of bridge strengthening and passing track lengthening to accommodate heavier locomotives and provide for longer trains.

New engine terminals at



The Southern Railway System

Andrews Yard (Columbia, S. C.), Winston-Salem and Jacksonville.  
Modern water facilities and coal handling plants at a number of points.  
New engine terminal facilities at Macon, Ga.  
Provision of new freight stations at a number of points.  
Extension of telephone train dispatching and message circuits.  
A great increase in the mileage protected with automatic signals.

The Southern Railway System at the beginning of 1928 had automatic signals installed on 3,004 miles of line, which represented an increase in the mileage so protected of 206 per cent in a period of four years.

Steady Decline in Transportation Ratio

These expenditures have contributed toward a steady downward tendency in the ratio of transportation

forests, 15.27 per cent; manufactures and miscellaneous, 24.05 per cent; l. c. l., 5.74 per cent. Compared with the percentages of the same traffic categories for 1923, a slight decline is to be noted in the proportion of forest products to total and there has been an increase in the relative importance of manufactured articles—which tendency is consonant with the growing industrialization of the territory the railway serves.

Corporate Surplus 86 Per Cent of Common Stock

The increase in the Southern's earnings is shown in the column headed "Balance After Charges" in Table I. Dividends on the common stock were inaugurated at a rate of 5 per cent in 1924. Prior to that time dividends were paid only on the preferred. In 1921 the preferred

Table I—Southern Railway—Earnings and Traffic Volume, 1917-28

Year	Average miles operated	Operating revenues	Operating expenses	Operating income	Balance after charges	Revenue ton-miles (thousands)	Receipts per ton per mile (cents)
1917	6,983	90,716,569	60,113,598	26,429,962	14,037,415	6,516,208	0.897
1918	6,983	126,574,297	91,810,425	30,976,625	5,708,913	7,234,628	1.053
1919	6,984	129,787,812	113,744,813	11,926,598	5,141,567	6,303,441	1.298
1920	6,973	152,817,410	131,236,149	16,890,016	1,716,149	8,229,651	1.219
1921	6,971	128,715,150	105,829,007	18,218,807	2,019,370	5,563,470	1.531
1922	6,971	128,489,847	97,170,133	20,472,778	8,823,797	6,512,961	1.353
1923	6,971	150,467,985	112,414,259	28,128,136	15,136,998	8,123,383	1.298
1924	6,868	142,486,514	102,674,674	30,442,719	17,769,140	7,585,374	1.316
1925	6,873	149,313,891	103,811,951	35,086,021	22,579,172	8,273,604	1.291
1926	6,795	155,467,975	107,866,588	35,528,783	23,596,721	9,023,254	1.250
1927	6,771	147,639,062	103,907,953	32,765,062	21,699,907	8,482,575	1.289
1928	6,760	144,116,452	101,887,718	30,842,554	19,267,132	8,412,608	1.291

expenses to operating revenues. This ratio in 1923 was 36.32 per cent. In 1928 it had reached 33.01 per cent. In the meantime the ratios of equipment and roadway maintenance expenses to operating revenues remained rather steady—maintenance of way between 13.5 per cent and 14.6 and maintenance of equipment fractionally higher than 17 per cent. The operating ratio in 1923 was 74.71. It declined steadily to 69.38 in 1926, the year of record earnings. In 1927 it was 70.38 and in 1928 it was 70.70.

Table II compares selected freight operating statistics of 1928 with those of 1927. It will be noted that, in spite of a slight decline in the volume of business, the

Table II. Comparison of Selected Freight Operating Statistics

	1928	1927	Per cent of change	
			Inc.	Dec.
Mileage operated	6,709			
Gross ton-miles (thousands)	24,627,857	24,790,632		0.7
Net ton-miles (thousands)	9,848,760	9,971,111		1.2
Freight train-miles (thousands)	17,612	17,961		1.9
Freight locomotive-miles (thousands)	18,351	18,700		1.9
Freight car-miles (thousands)	685,266	687,351		0.3
Freight train-hours	1,315,522	1,360,966		3.3
Car-miles per day	28.4	29.2		2.7
Net tons per loaded car	22.5	22.4	0.4	
Per cent loaded to total car-miles	64.0	64.7		1.1
Net ton-miles per car-day	407	424		4.0
Freight cars per train	39.9	39.2	1.7	
Gross tons per train	1,398	1,380	1.3	
Net tons per train	559	555	0.7	
Train speed, miles per train-hr.	13.4	13.2	1.5	
Gross ton-miles per train-hr.	18,721	18,215	2.8	
Net ton-miles per train-hr.	7,487	7,326	2.2	
Lb. coal per 1,000 gross ton-miles	158	160		1.3
Loco. miles per loco. day	52.4	53.5		2.1
Per cent freight locos. unserviceable	11.6	12.4		6.5
Per cent freight cars unserviceable	8.0	5.2	53.8	

company was able to reduce its train-hours in even greater proportion, to improve its fuel performance and to better its showing in tonnage per train and train speed, bringing higher totals of ton-miles per train-hour (both gross and net).

Growing Tonnage of Manufactures

The Southern's tonnage in 1927 was divided as follows: Products of agriculture, 9.71 per cent; products of animals, 1.09 per cent; products of mines, 44.14 per cent (bituminous coal 28.12 per cent); products of

dividend was deferred and in 1922 the payment was limited to 2¼ per cent—half the customary rate, with the full rate resumed in 1923. The dividend rate on the common stock was raised to 7 per cent in 1926 and to 8 per cent in 1927. The year 1928 did not, as Table I shows, bring a balance after charges as great as the three years which preceded it. Nevertheless this balance was sufficient, after the payment of preferred dividends, to equal \$12.53 per share of common stock. Such earnings, of course, reflect the large uncapitalized equity which the stockholders have in the property—the corporate surplus accumulated out of earnings in the years when no dividends were paid. The profit and loss credit balance at the end of 1928 was \$111,747,854—equivalent to 86 per cent of the outstanding common stock.

DAMAGE TO PHYSICAL PROPERTY of the Louisville & Nashville by the recent floods in Alabama, Florida, Kentucky and Tennessee approximated \$500,000. More than \$350,000 of the damage was along the lines in Kentucky and Tennessee.

\* \* \*



A Lackawanna Oil-Electric Locomotive Equipped With Ingersoll-Rand Power Plant

## Changes in Car-Hire Rules Proposed

WASHINGTON, D. C.

**V**ARIOUS modifications of the present rules for car-hire settlement between railroads for the use and detention of freight cars when on the lines of carriers other than their owners are recommended by William P. Bartel, director of the Bureau of Service of the Interstate Commerce Commission, and Special Examiner Claude A. Rice in a proposed report made public on April 16 in connection with the investigation of the car-hire rules instituted by the commission in 1926 after it had been petitioned to do so by the American Short Line Railroad Association. The investigation also involved a re-opening to some extent of other proceedings involving car-hire relations with short-line and industrial railroads.

The report recommends a finding that the daily rental of \$1 per car approximates adequate compensation under the conditions presented, but it also finds unreasonable several requirements of the American Railway Association rules and agreements which had been complained of by the short line association. One of the recommendations is that Paragraph (b) of per diem rule 6 be found unreasonable. This was one of the principal contentions made by the short lines at the protracted hearings held in connection with the investigation. This rule provides that roads subscribing to the per diem agreement shall make settlement with their non-subscriber common-carrier connections (other than roads which have been declared industrial common carriers) at the established per diem rate, without any free time allowed and without reclaim.

The report says the rule is mandatory in its terms and leaves no discretion to individual railroads but that some carriers comply with its provisions and others do not. The rule is said to be directly responsible for most of the car-hire controversies existing between subscribers to the per diem agreement on one hand and non-subscriber short line railroads on the other. "The record affords ground for belief," the report says, "that the primary purpose of rule 6 (b) was to influence roads to become members of the A. R. A. or associate members if less than 100 miles in length, and to subscribe to the per diem agreement."

After a lengthy review of the evidence and of the application of the car-hire rules to various classes of short lines the report recommends that the commission should find as follows:

1. Common carrier railroads, whether subscribers to the per diem agreement of the American Railway Association, or non-subscribers, are entitled to receive adequate compensation in the form of a daily rental for the use of their general service freight cars when on foreign lines. Adequate compensation found to approximate \$1 per car day under the conditions here presented.
2. Resolution appended to per diem rule 18, which recommends that subscribers to the per diem agreement pay to non-subscribers for the use of their general service freight cars, the same mileage rates as are paid for the use of cars owned by private car lines, is unreasonable.
3. Per diem rule 5 is unreasonable to extent that it prohibits car-hire allowances to non-subscribers which perform terminal switching, as the latter term is defined by the switching reclaim rules of the American Railway Association, and should be so amended as to provide for reclaim allowances to non-subscribers.
4. Paragraph (b) of per diem rule 6 is unreasonable.
5. Car hire-allowances may properly be accorded to terminal railroads outside switching districts. In granting such allowances, consideration should be given to local condition, to the question of whether the terminal railroad is efficiently operated, and the amount of car-hire which it would pay if

accruals were computed on a mileage basis at three cents per car mile.

6. It is uneconomical for short stub-end carriers to subscribe to the per diem agreement and report per diem accruals to numerous car owners throughout the country, and that such lines should be attached to their connecting carriers for purpose of car-hire settlement.
7. Railroads whether long or short which interchange traffic with several other railroads should subscribe to the per diem agreement and make car-hire settlement direct with car owners. And that railroads 100 miles or more in length should subscribe to the per diem agreement and report per diem to car owners, regardless of the number of railroads with which they connect.
8. The modified demurrage basis of settlement now in force with the Chicago Short Line, Illinois Northern, Manufacturers' Junction, Pullman, Bay Terminal, Benwood & Wheeling Connecting, Birmingham Southern, Genesee & Wyoming, Lake Erie & Fort Wayne, Lakeside & Marblehead, Lime Rock, McKeesport Connecting, Moshassuck Valley, Northampton & Bath, Tionesta Valley, Valley Railroad, and Valley & Siletz, should be abrogated.
9. A modified per diem basis with two days free time per load interchanged should be adopted by connecting carriers in making settlements for per diem cars delivered to the Lakeside & Marblehead, Moshassuck Valley, Northampton & Bath, Valley Railroad, and the Valley & Siletz, and a per diem basis with reclaims in settlements with the Lime Rock. The Genesee & Wyoming and the Tionesta Valley should make car-hire settlements in accordance with the per diem rules.
10. The system of car-hire settlement prescribed by the per diem code, when revised to conform with findings herein, will constitute a reasonable basis for car-hire settlement with the Chicago Short Line, Illinois Northern, Manufacturers' Junction, Pullman, Bay Terminal, Benwood & Wheeling Connecting, Birmingham Southern, Lake Erie & Fort Wayne, and the McKeesport Connecting; provided that a report of the reclaims allowed such railroads should be filed with the Commission; and provided further, that the modified demurrage bases of car-hire settlements now in operation should be continued in force for a reasonable time, but not to exceed six months after a decision is entered in this proceeding, to enable interested carriers to determine the amount of time actually required by each of these railroads to handle freight cars in terminal switching service.
11. The existing basis of car-hire settlement with the Big Sandy & Kentucky River, Greenville & Northern, Jefferson & Northwestern Kosciusko & Southeastern, Morehead & North Fork, Skaneateles, South Manchester, and the Virginia Blue Ridge, is unreasonable, and that connecting carriers should substitute a modified per diem basis with two days free time on each load interchanged; provided that no car-hire should be collected on cars delivered to such railroads for return coal loading; and provided further, that reclaims in lieu of two days free time should be allowed on cars handled in terminal switching service.
12. A modified per diem basis is a more appropriate method of car-hire settlement with short line common carriers, whether industrially owned or otherwise, than a demurrage or modified demurrage basis, demurrage being a penalty charge which is calculated to cause prompt loading, unloading and release of cars by shippers and receivers of freight.

\* \* \*



An Erie Freight Train Crossing the State Line Near Hammond, Ind.



One of the 9,000-Ton Trains on the Main Line

# Handling 9,000 Tons Per Train

*Pittsburgh & Lake Erie builds up tonnage  
to cope with traffic density*

THE Pittsburgh & Lake Erie, with 49,367 gross ton-miles per mile of road per day, led all roads in the country in traffic density for the first nine months of 1928. The P. & L. E. operates only 231 miles of line; yet, during 1928, it handled 2,295,091 cars in road haul, an average of 191,253 cars per month, or 6,288 cars per day.

For several years, the traffic density on this line has been so great that efficient and economical operation has required that the number of freight trains operated be held to the minimum, by increasing the tonnage handled. As a result of well-directed efforts along these lines, the "tonnage" trains, which constitute the major portion of the road's freight business, handle an average of 9,000 gross tons each, during nine months of the year, and 8,000 gross tons during the other three months, when the coldest weather prevails.

The traffic density is indicated by the average number of freight trains operated per day over the P. & L. E.:

Average number of tonnage trains.....	43
Average number of through merchandise trains.....	18
Average number of local freight trains.....	18
Total .....	79

To handle heavy tonnage successfully, it has been necessary to build up and maintain the track in the best of shape, to increase the capacity of the motive power and to devise methods whereby such heavy trains could be operated over the railroad without delays. The results of these combined programs are indicated in a study made covering a 60-day period in 1928, compared with the similar 60-day period of 1925, which showed that the average gross tons per train have been increased from 6,628 in 1925, to 8,907 in 1928, an average increase of 2,279 tons per train or 34.4 per cent in three years.

It was necessary to obtain the maximum utility from the physical plant to obtain these results. The extent to

which this has been done is indicated in statistics compiled by the American Railway Association, for the first nine months of 1928, which show that the P. & L. E. made 8,275,944 gross ton-miles per active locomotive, while the next highest road in the Great Lakes region made only 6,979,710 miles. Again, the P. & L. E., with 111.1 lb. of coal per 1,000 gross ton-miles, was first in the Great Lakes region, the next best being 115.7 lbs.

## Traffic Characteristics

The preponderant loaded movement is westbound, approximately 90 per cent of the westbound cars having been loaded for several years past, while eastbound, about 35 per cent of the cars have been loaded. More than 75 per cent of the freight traffic consists of products of the mines, consisting of bituminous coal, coke, ore and limestone, while approximately 12 per cent consists of finished iron and steel products, such as pipe, wire, wire fencing and nails. The large movement of coal and coke originates at various points along the Monongahela river between McKeesport and Brownsville, Pa., and along the Youghiogheny river between McKeesport and Connellsville, Pa.

The eastbound traffic consists principally of ore, and of basic iron and steel products, such as beams, ingots, billets and sheet bars, moving to the steel plants for finishing. There is also, of course, a considerable movement of general merchandise, such as normally moves in a highly industrialized district such as that served by the P. & L. E.

Although ore constitutes a sizeable percentage of the traffic, it is by no means the principal commodity handled. Formerly, ore was moved from the lakes to the Pittsburgh district only during the season of lake navigation, requiring the steel mills to carry huge stocks to supply their needs during the winter season, but by increasing the speed with which ore trains make the run, the

danger of the ore freezing in the cars has been overcome by the P. & L. E. This has resulted in ore moving all year, instead of merely during a restricted season. It has also enabled many of the mills to discontinue the large storage. The movement of ore during the winter is constantly growing, as the railway continues to demonstrate that it can be done efficiently.

The highly industrialized territory served by this road is indicated by the fact that the entire P. & L. E. division, 64.9 miles, is within yard limits, as are most of the Monongahela and Youghiogheny divisions. The intensity of the development is further brought out by the fact that switching engine miles made on the P. & L. E. regularly exceed those made by road freight locomotives.

### The Physical Lay-Out

The main line between Pittsburgh and Youngstown is known as the P. & L. E. division, and consists of four main tracks for practically the entire distance. The Youghiogheny and Monongahela divisions are double track between Pittsburgh and Connellsville and between Pittsburgh and Brownsville, with one stretch of four-track line.

The weight of rail on these lines has been progressively increased, until at present there are 231.27 miles of 115-lb. rail, while the lightest rail used in the main line is of 115-lb. section.

The P. & L. E. traverses unusually rugged country, both east and west of Pittsburgh. To avoid heavy grades, its builders located it in the Mahoning, Beaver, Ohio, Monongahela and Youghiogheny river valleys. This did not, however, eliminate all grades, and as the traffic grew heavier, it became increasingly apparent that more

favorable grades were necessary if the tonnage was to be raised. Accordingly, for several years, an ambitious program of grade revision was carried out, with the result that a ruling grade of 0.3 per cent has been obtained over the entire line, except for two miles in the vicinity of Homestead, Pa., where there is a 0.5 per cent grade. It is at this point that the only helper service on the entire railroad is operated. Even here, however, a long approach on a curve to a bridge is the limiting factor, rather than the grade itself.

### Power Capacity Increased

In motive power as in track, the P. & L. E. has endeavored to keep its plant thoroughly modernized and of sufficient capacity to take care of its particular needs. In 1914, the average tonnage per train was slightly over 4,000 tons, which was an exceedingly creditable figure at the time. The standard freight engine then was of the consolidation type, hand-fired and with a tractive force of 44,100 lb. In the intervening years, the tonnage of the average train has been more than doubled, and the motive power has kept pace with the development. Larger power was purchased, equipped with automatic stokers. Then followed a program of booster installations, which has not only increased the tractive effort per locomotive, but has also aided operations in facilitating the starting of heavy trains. Mikados are the present standard freight locomotives. These are of five sizes and their tractive effort, including the boosters, is as follows:

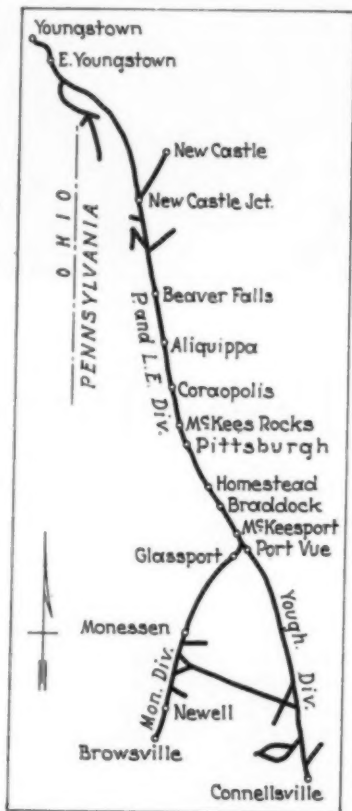
77,340 lb.
74,650 lb.
70,000 lb.
69,900 lb.
59,700 lb.

### Locomotive Utilization

Freight engines are changed at McKees Rocks on all through runs. By the construction of a spur track immediately adjacent to where the head end of the train stops, an unusually rapid change of engines is made, so that the trains do not lose their air. The average time over a considerable period has been three minutes. If it takes longer than four minutes, an explanation is called for, although it is seldom that such explanations are necessary.

Between Pittsburgh and McKeesport, the P. & L. E. operates through one of the most highly developed industrial districts in the world. Naturally, this involves a large amount of industrial switching, resulting in a considerable number of movements on the main line by yard engine. The same situation exists on the remainder of the line, although to a less extent.

In order to cut down the length of yard engine move-



The P. & L. E. Traverses Thickly Settled Country



The General Offices at Pittsburgh Overlook a Busy Stretch of Railway

ments, enginehouses are situated at frequent intervals along the line, at Newell, Glassport, Dickerson Run, McKee's Rocks, College Yard, Newcastle Junction and East Youngstown. The number of movements to and from enginehouses is reduced by double and triple-crewing yard power. Yard engine movements are still further reduced and co-ordinated by the use of "peddler" switching crews, who take out fresh engines to relieve those needing enginehouse attention and bring the latter in to the enginehouses. The use of these "peddler" switching crews has been amply justified, in view of the enormous amount of switching performed, by the increased productive service time obtained from the regular switching crews and locomotives. The regular crews now report on the job, begin productive service at once, and continue until the end of their shift in productive service, instead of spending much valuable time shuttling back and forth between the enginehouse and the job.

#### Operating Organization and Methods

The compact organization has been one of the most important elements in the successful administration of the property. Of course, close co-operation between departments and between officers in the same department usually exists to a greater extent on a small road than on large ones, where distance and lack of frequent contact present formidable obstacles. The P. & L. E. has capitalized on this advantage to the fullest extent. All of the general officers make their headquarters in the same building at Pittsburgh, and meet daily for lunch in a dining room in



Newell Yard, Where Many Heavy Tonnage Trains Originate

the general office building, where subjects of common interest to several departments may be discussed informally by the heads of those departments.

Any part of the railway may be reached by a maximum of 2 hrs. 30 min. ride from the general office building, and, as a matter of fact, the officers are able to see a considerable portion of one of the busiest parts of the line from their office windows. This close contact naturally affords opportunities for careful supervision, and these opportunities have not been overlooked on the P. & L. E. It is possible for the operating executives to study their problems at close range and in considerable detail, so that, under competent officers, there is little in the way of inefficiency that escapes attention and correction.

As the tonnage increased, it was realized that one of the prime considerations governing the successful operation of heavy tonnage trains is that they be moved over the railroad with as few stops as possible. This presents a serious problem when the switching all along the line is as heavy as that described in the preceding paragraphs.

Rule 93 of the Standard Code, covering the movements of yard engines on main tracks, permits some latitude in its interpretation. It reads as follows:

Within yard limits the main tracks may be used, protecting against—class trains

In the P. & L. E. book of rules, this rule is as follows:

Within yard limits the main track may be used, protecting against all trains.

This rule is adhered to strictly and it has resulted in a much improved operation of heavy tonnage trains. It provides against their being stopped, and it has an important psychological effect upon the engineers, in that, knowing that they are protected, they run with more assurance. On the other hand, there is little delay to the yard engines by taking all necessary precautions before going out on the main line. The jobs at various places have been lined up so that, in nearly every instance, all moves that involve the use of main tracks are worked in at times when these tracks are not busy.

The improvements in the physical plant, comprising track and motive power, in conjunction with improved operating methods, have had their effect in vastly increasing the efficiency of operation. In addition, a successful pre-classification plan has been made effective, which has materially improved numerous phases of the operation. The details of this plan will be given in an article to appear in an early issue.

## Nickel Plate Seeks Control of W. & L. E.

WASHINGTON, D. C.

**B**EGINNING a new chapter in the rather involved history of the contests for control of the Wheeling & Lake Erie, the New York, Chicago & St. Louis on April 15 filed with the Interstate Commerce Commission an application for authority to acquire control of the Wheeling and of its subsidiary, the Lorain & West Virginia, by acquisition from the Alleghany Corporation of stock which with that now held by the Nickel Plate will make up 53 per cent of the total outstanding and also by ultimate lease for 999 years. At the same time the Nickel Plate filed a petition asking the commission to vacate its order of March 11 which directed it to divest itself of its 17 per cent of the Wheeling stock; another petition for leave to intervene in opposition in the proceedings on the application of the Pittsburgh & West Virginia for authority to acquire control of the Wheeling; and another application for authority to issue \$6,753,300 of its own common stock and \$6,753,300 of its 6 per cent cumulative preferred stock, the proceeds to be applied toward the purchase of the Wheeling stock held by the Alleghany Corporation for \$21,362,638 in cash.

In its petition for a vacation of the order the Nickel Plate says that the entire basis for the commission's finding of a Clayton act violation on its part had fallen to the ground when the Baltimore & Ohio divested themselves of its stock in the Wheeling, just prior to the commission's order, and that if the other members of the supposed "conspiracy", "concert of action", or "community of interest", have disposed of their Wheeling stock, the Nickel Plate and its holdings must be separately considered. It refers to the commission's statement that informal representations had been made to its chairman to the effect that the B. & O. and Central had disposed of, or were in process of disposing of, the Wheeling stock owned by them and submits that this "additional material fact known and made

manifest to the commission demonstrates the necessity of vacating as to it the report and order, inasmuch as no possibility of control of the Wheeling by this respondent has been shown."

Applicant says it has a commitment in writing with the Alleghany Corporation, subject to the commission's approval by October 1, for the purchase of \$7,679,500 par value of Wheeling prior lien stock, \$986,700 of preferred stock and \$11,200,000 of common stock, all for \$21,362,638 in cash with interest at 6 per cent on \$10,679,721 from February 26, and on \$10,682,917 from March 1. As soon as it shall be able to negotiate a lease it proposes to acquire all the properties of the Wheeling and the Lorain & West Virginia by lease for 999 years, on conditions to be approved by the commission. It also offers to acquire control of each and every short or weak railroad which the commission considers ought to be continued in operation and included in its proposed system.

In giving reasons why it says control of the Wheeling by it would be in the public interest, the Nickel Plate points out that, unlike its principal competitors, it has no access to the Pittsburgh district nor to any important soft coal deposits. It also shows that the report by Professor Ripley and the commission's own tentative consolidation plan of 1921 included the lines of the Nickel Plate and the Wheeling in the same system and that there are and have been for a number of years important and well-established routes and channels of trade and commerce involving the use of the Nickel Plate and the Wheeling. Unless the two lines are operated and managed so as to afford through and co-operative service (and especially if the Wheeling should be under control adverse to applicant), it says, "applicant would be at the mercy of its competitors in respect of the important traffic which has been referred to."

"The three great systems which are the principal competitors of applicant and of the Wheeling, namely, the New York Central, the Pennsylvania, and the Baltimore & Ohio, have acquired and are still proposing to acquire, by authority of the commission, control of other carriers. Applicant and the Wheeling, and the public dependent upon them, will be put to a serious disadvantage in matters of competitive service, unless the facilities of these smaller carriers are unified and co-operatively employed."

The Nickel Plate proposes to issue its new stock to the present holders of its stock in the ratio of one share for each five shares held.

The petition for a vacation of the order directing the Nickel Plate to dispose of its Wheeling stock is accompanied by a lengthy legal argument that the commission's action was erroneous; that the commission failed to consider essential provisions of the statute applicable to it; and that the order is void for indefiniteness and uncertainty and because in its present form it does not conform to the statute and is unenforceable in a circuit court of appeals.

Under the caption "The Neglected Law", the petition says in part:

#### The Neglected Law

The commission set out in its report what it considered to be "the pertinent portion of section 7 of the Clayton Act." It omitted the following essential part of the Act, which constitutes the fourth paragraph of said section:

"Nor shall anything herein contained be construed to prohibit any common carrier subject to the laws to regulate commerce from aiding in the construction of branches or short lines so located as to become feeders to the main line of the

company so aiding in such construction or from acquiring or owning all or any part of the stock of such branch lines, nor to prevent any such common carrier from acquiring and owning all or any part of the stock of a branch or short line constructed by an independent company where there is no substantial competition between the company owning the branch line so constructed and the company owning the main line acquiring the property or an interest therein, nor to prevent such common carrier from extending any of its lines through the medium of the acquisition of stock or otherwise of any other such common carrier where there is no substantial competition between the company extending its lines and the company whose stock, property, or an interest therein is so acquired."

This omitted paragraph provides explicitly that nothing in the statute under consideration shall be construed to prevent this respondent from acquiring and owning *all or any part* of the stock of a branch or short line constructed by an independent company where there is no substantial competition between the company owning the branch line so constructed and this respondent, nor to prevent this respondent from extending any of its lines through the medium of the *acquisition of stock or otherwise* of any other such common carrier where there is no substantial competition between this respondent and the company whose stock, property, or an interest therein is so acquired. Having omitted said paragraph from consideration, the Commission stated in its report herein:

"We find it impossible to accept the theory that Congress intended that acquisition of absolute control of one corporation engaged in commerce by one or more other corporations engaged in commerce in the same territory could be regarded otherwise than as a substantial lessening of competition."

This respondent respectfully submits that in connection with the material prohibitory provisions in the first paragraph of said Section 7, which apply generally to all corporations "engaged in commerce," whether under the jurisdiction of the Federal Reserve Board, the Federal Trade Commission, or the Interstate Commerce Commission, the said omitted fourth paragraph constitutes a proviso, exception, or saving clause, applicable to common carriers which, by Section 11 of the Clayton Act, are subject only to the jurisdiction of this honorable Commission; and that, according to elementary rules of construction, the office of said fourth paragraph must be to except something from the prohibitory provisions, or to qualify or restrain their generality, or to exclude some possible ground of misinterpretation of the prohibitions as extending to cases not intended by Congress to be brought within their purview.

Substance is the essence, not the accident, nor the incident. If the essence of the acquisition of stock or other transaction is the destruction of competition then the lessening of competition is substantial. But if the essence of the acquisition of stock is to secure a branch line or to extend the line of the acquiring carrier, and competition may be incidentally, but not unduly, affected, then the competition is not substantial.

The determining fact would seem to be that found by the Commission in the *Directorate Case* and repeated in the present report, to-wit:

"The Wheeling and the Nickel Plate are complementary and supplementary to a greater degree than they are competitive. The Nickel Plate is mainly an east-and-west line, while the Wheeling is largely a north-and-south line. The former reaches none of the large industrial centers in northeastern Ohio except Cleveland. It uses the Wheeling to reach those centers and, in connection with the Pittsburgh & West Virginia, to obtain an entrance into the Pittsburgh territory."

However, to the extent, if any, to which the volume or percentage of traffic which is competitive between this respondent and the Wheeling may be determinative of the substantiality thereof this respondent invites attention to the Commission's error, under the omitted paragraph, in holding that the consideration is not limited to traffic now moving. While the language of the first paragraph is as to an effect which "may be to substantially lessen competition," it has been judicially determined that this looks to "preservation of established competition," and the wording of the omitted fourth paragraph, or proviso, looks in terms to the present, or to cases "where there is no substantial competition."

In addition to the failure of the Commission to make, in support of its order, the necessary finding, on proper evidence, that the effect of this respondent's acquisition may be to substantially lessen competition between the Wheeling and this respondent, there is an utter nonfulfillment of the requirement that to support such an order it must appear from the record that there is *now*, or was at the time of acquisition, substantial competition between these two lines.

# New Office Equipment For Great Northern Buyers



*The Old and New Way of Keeping  
Invoice Records*

**G**REATER accuracy and speed in important clerical work connected with the purchasing of material and supplies on the Great Northern are being obtained as a result of changes in the methods and equipment for keeping invoices and typing letters in the purchasing department of this road. On January 1, a card system was installed for keeping invoice data and this was followed more recently by another card system for keeping the addresses of supply houses with which the road carries on correspondence.

The invoice system comprises sets of cards, 10 in. wide and 11 in. long, which are ruled on both sides for keeping a complete record of the movement of every invoice from the time it is received until it is paid. A card is made out for each firm and these cards are filed alphabetically in a cabinet desk. The desk is U-shape and the cards stand on edge in rows in the two wings so that all the cards are within arm's reach of a clerk sitting between the wings. As invoices are received from firms, or other steps in checking or paying them are completed, the documents are sorted alphabetically by firms and, consequently, the proper card is lifted from the case, laid on the desk and marked and then dropped back into place. New cards are made and inserted as new accounts appear, and when the face of

a card is filled, the record is continued on the back. The front of the cabinet affords desk room for papers and this can be enlarged by putting special covers over any section of the card files not in use.

Previously the listing of invoices was done in loose-leaf books. The pages in these books were large, measuring about 16 in. from top to bottom, and about 24 in. lengthwise, so that the invoice record could be continued on the right half of the page when the left half was filled. Each book contained about 1,000 pages, making it from 6 to 8 in. thick and giving it a weight of 25 lb. or more. These books and several books of the same kind containing transferred pages calling for occasional reference, were kept in a steel cabinet with roller shelves, but they were cumbersome to handle notwithstanding. To use a book it was necessary to take it out of the rack and place it on a table. It was difficult to write in them, particularly when working near the bottom of the record, and so much trouble attended the insertion of new sheets in their proper places as new accounts were opened, or to remove old sheets when they were filled, that it had become the practice of binding the new or revised sheets in a separate book, and it was necessary to maintain an index.

At the present time, cards have been made for about

3,000 firms and it is estimated that the equipment saves about 20 per cent of the time previously required to list invoices and check vouchers. It is also welcomed for the ease with which the work can be done. A comparison of the two systems will appear from the photos of the new and old systems.

#### Address Books Speed Correspondence

The other innovation recently appearing in the purchasing office of the Great Northern is the revolving address books. For several years the department had



Writing Letters with the Aid of a Revolving Address Record

difficulty in keeping in convenient and up-to-date form, the addresses of firms, needed for reference in letter writing. The practice was to use type-written loose-leaf books. An effort was made to keep these in alphabetical order but even though the lists were recompiled at reasonable intervals, their value would be impaired in a short time by additions and corrections required and it was unavoidable that a large percentage of the names would be listed out of their natural order, causing delay in locating them.

The new method employs panels of cards fixed to revolving stands. The name and address of each firm is typewritten on a strip of special paper and inserted in a flat celluloid tube and these tubes are then inserted alphabetically. With the slightest effort, any panels attached to the stand can be moved forward and the proper panel turned to show the desired address.

The stand for typing purchase orders is a large one. It carries 26 panels at present and has a capacity of 50 panels, capable of listing 5,000 names, each panel holding 100 names or 50 on each side, and the width of the panel allows room to show the proper routing for freight shipment, with the address. Smaller stands are installed for ordinary correspondence work, these stands carrying 25 panels and listing at present about 2,000 names. In listing the names only, the smaller stands meet every requirement for this purpose since the address of the firm is obtainable from the correspondence which the stenographer has when transcribing dictation.

With this card system, it is only necessary for purposes of revision to pick out the tube containing the name to be changed or discarded and close up the vacant space by moving the remaining tubes together, while new names are added in proper sequence by spreading the tubes apart. The stands are attractive in

appearance, promote speedier work and avoid the chances for confusion and inaccuracy that are likely to result from disorderly address lists. Both systems have been introduced under the direction of F. I. Plechner, purchasing agent.

## A New Design of the Durable Bumping Post

THE design of the Durable bumping post, manufactured by the Mechanical Manufacturing Company, Chicago, has been modified to provide greater strength to resist the shocks imposed by the heavier equipment of the present time and, at the same time, to reduce the time and labor necessary for installation.

The new post, which is designated as the Durable "Model B", is similar in design to the former Durable post except that straight rails are used for anchoring the head of the post to the running rails. These rails are attached to the bumper head in the same manner as in the former model, but their lower ends, instead of being bent to permit their being bolted to the running rails, extend below the bottom of the running rails, being drilled to receive a heavy cross rod which bears snugly against the bottom of the running rails, to which it is attached by nuts and clips engaging the outer flanges. The straight rails are also attached to the running rails by bolting to steel castings which bear against the webs of the running rails, to which they are secured by two bolts of the same diameter as the track bolts.

This form of construction provides great strength by tying the bumping post and the track firmly together, the crossbar utilizing the weight of the car to resist the tendency of the track to raise at the attachment of the anchor rails when the post is subjected to heavy impacts, while it prevents the track from spread-



The Durable Model B Bumping Post

ing. The substitution of the straight anchor rails for the bent rails also eliminates the possibility of the bends straightening out under heavy shocks.

Since all of the bumping post and its attachments are above ground, installation is simple. Only four bolt holes through the running rails are necessary for the attachment of the anchor rails and as the bolts used are of the same diameter as the track bolts, the holes may be drilled with the regular track drill, thus considerably reducing the work required for the former model, for which 10 oversized bolt holes were necessary.

## Emergency Board Hears T. & P. Case at Dallas

THE emergency board appointed by President Hoover to investigate the controversy between the Texas & Pacific and the members of the four train service brotherhoods, convened at the Baker hotel at Dallas Tex., on April 10 and spent the first day in listening to the outlining of the issues and the scope of the testimony to be presented by each side, in the dispute which grew out of the removal by the T. & P. of its terminals from Longview, Tex., and Marshall to Mineola, Tex., and Shreveport, La. Before the appointment of the emergency board the trainmen had called a strike for March 30.

Early in the hearing the compensation question was accepted by the disputants as the chief issue, of the seven, to be placed before the emergency board. T. J. Freeman, general solicitor of the railroad, declared that the demands of the employees for reimbursement for losses on homes because of the change of termini was without precedent in the history of railroading. The right to make such a change is a managerial prerogative, he said, and every employee enters the service with the inherent risk of a sudden change in his residence. He stated that the moving of the Longview terminal was necessitated by the loss of time of trains in moving to Longview via Dallas, the 16-hour law sometimes requiring that the men be taken off their trains before reaching Longview, whereas Mineola is so situated that trains can be operated without conflicting with the 16-hour law.

Mr. Freeman explained that under the seniority rules, which necessitate frequent changes in residence, the railroad moves the household goods and families of the trainmen free of charge, but that there is no requirement that the men be paid for losses on investments in localities from which they are moved.

In reply to a question asked by Walter C. Clephane, a member of the board, as to whether the employees would be justified in purchasing homes at Mineola without fear of future loss, J. A. Somerville, president of the T. & P., stated that the railroad's investment of more than \$475,000 at that point indicates its intention to maintain Mineola permanently as a terminal. The growth of the City of Longview made it impossible to enlarge the yards at that point, he said. Mr. Somerville declared that every effort was made to remedy unsatisfactory conditions resulting from the change and that the railroad had made a saving of 15 per cent in operating costs by this move in addition to the improvement of service and the placing of the company in a better position to meet increasing competition from other roads.

Fred Barr, vice-president of the Brotherhood of Locomotive Firemen and Enginemen, introduced an exhibit to show that the Chesapeake & Ohio in 1914 and 1915 had decided against the moving of a terminal, following the protests of the trainmen. Mr. Clephane objected to the inclusion of that testimony in that he was unable to find any parallel between that case and the T. & P. situation.

J. A. Gannon, vice-president of the Order of Railway Conductors, contended that if employees are to follow the progress of their railroad, some provision must be made for their families and they must be compensated for the loss occasioned by their desire to render a public service in the continued operation of their trains. It was his belief that the loss suffered by the men on their

homes is as properly chargeable to the cost of transportation as is the building of a terminal at Lancaster yard, at Forth Worth or at Shreveport.

Mr. Barr declared that within the past few weeks conferences have been held in Chicago and Cleveland by executives of the brotherhoods with the idea of agreeing upon a program of legislation which will enable the problem of compensation for losses on homes through removal of terminals to be met nationally. The tendency toward consolidations has made the question a pressing one for the brotherhoods, he said.

James R. Garfield, chairman of the emergency board asked the brotherhood officers to furnish an outline of the principle which they believe should govern in the event that compensation is granted the employees. On April 13, the brotherhood representatives asked the board that they be allowed to submit the compensation issue to arbitration. Mr. Barr, in reply to Mr. Garfield's question as to why they had not accepted the railroad's earlier offer to arbitrate, stated that the brotherhoods had mapped out their plans and a change of procedure would have been dangerous to their interests. Mr. Garfield observed that the mere fact that a strike ballot had been issued did not seem, in the eyes of the board, a complete justification for a refusal to arbitrate.

The trainmen on the 16th, presented testimony showing that the employees affected by the moving of the terminals owned homes at Longview and Marshall, which are estimated to have a property value of \$466,980. J. W. Dalston, chairman of the Longview city commission, said that the removal had reduced property values in Longview to an extent that by 1930 might reach 60 per cent in certain residential districts; that the market for farm products had been curtailed and that business generally had suffered though he "did not believe that Longview would be quite wiped out or ruined." About 75 per cent of the railroad industrial payroll in Longview had been made up of Texas & Pacific employees. Frank Davis, secretary of the Marshall Chamber of Commerce, declared that the removal of the terminal from that city had had no appreciable effect on property values and, in his opinion, the citizens of Longview were unduly alarmed. Fifty-five instances in which railroad terminals have been moved were placed in the record by W. H. Tobin, assistant general manager of the Texas & Pacific and in very few instances was compensation paid for losses sustained.

Testimony had been received by the board on two other subsidiary issues—the hypothetical question as to the assignment of crews to certain fast freight runs, and the demand of the men for operation of bus service by the railroad at terminal points—up to April 15 and it was expected that evidence would be presented on the pooling of cabooses, the lengthened runs occasioned by the terminals' removal and the extension of seniority rights over subsidiary companies of the T. & P., so that the board might adjourn its public hearings on April 17.

IN THE STATE OF PENNSYLVANIA, the number of railroad employees killed by accident in 1928 (142) was 27 per cent less than the total in 1927, and the number injured was 20 per cent less. These and numerous other items, with elaborate classifications and comparisons, are shown in a circular issued by the Public Service Commission of the State, covering all accidents in 1928 on both steam and street railways. The table of accidents at highway grade crossings is analyzed in great detail. On steam railroads, 628 persons were killed and 4,974 were injured during the year as compared with 680 killed and 6,023 injured in 1927; and the total number of passengers killed was eight as compared with 14 in 1927.

### Census of Locomotives

WASHINGTON, D. C.  
**T**HE Department of Commerce announces that, according to data collected at the biennial census of manufactures taken in 1928, the total value of locomotives and parts manufactured in the United States in 1927 amounted to \$86,160,670, an increase of 16.5 per cent as compared with \$73,946,742 reported for 1925, the last preceding census year. The total production in 1927 was made up as follows: Steam locomotives—944 standard gauge, valued at \$56,922,426; 110 mining and industrial, \$1,392,956. Electric locomotives—44 standard gauge, valued at \$4,931,673; 765 mining and industrial, \$4,717,692. Internal-combustion locomotives—standard gauge and mining and industrial (data incomplete for number), valued at \$2,335,097. Parts, \$15,860,826.

Of the value of the total production for 1927, as given above, \$73,007,477 was contributed by establishments in the "Locomotives" industry, as classified for census pur-

SUMMARY FOR THE INDUSTRY: 1927 AND 1925			
	1927	1925	Per cent of increase or decrease (—)
Number of establishments .....	17	18	(1)
Wage earners (average for the year) <sup>2</sup> .....	12,961	12,809	1.2
Wages <sup>3</sup> .....	\$17,648,206	\$18,218,843	— 3.1
Cost of materials, shop supplies, fuel, and purchased power, total <sup>4</sup> .....	\$45,688,450	\$41,717,142	9.5
Materials and supplies .....	\$43,568,998	(1)	.....
Fuel and power .....	\$2,119,452	(1)	.....
Products, total value <sup>5</sup> .....	\$76,719,403	\$65,389,134	17.3
Locomotives and parts .....	\$73,007,477	\$61,626,937	18.5
Other products, value, and receipts for repair work .....	\$3,711,926	\$3,762,197	— 1.3
Value added by manufacture <sup>6</sup> .....	\$31,030,953	\$23,671,992	31.1
Horsepower <sup>6</sup> .....	148,971	114,209	30.4

<sup>1</sup> Per cent not computed where base is less than 100.  
<sup>2</sup> Not including salaried employees.  
<sup>3</sup> The amount of manufacturers' profits can not be calculated from the census figures, for the reason that no data are collected in regard to a number of items of expense, such as interest on investment, rent, depreciation, taxes, insurance, and advertising.  
<sup>4</sup> Not reported separately.  
<sup>5</sup> Value of products less cost of materials, shop supplies, fuel, and purchased power.  
<sup>6</sup> Horsepower of engines and motors used in manufacturing operations, not horsepower of locomotives manufactured.

poses, and \$13,153,193 by establishments in other industries—chiefly steam-railroad repair shops and manufacturers of electrical machinery, apparatus, and supplies.

Of the 17 establishments in the locomotive industry reporting for 1927, 6 were located in Pennsylvania, 3 in Ohio, 2 in Georgia, 2 in New York, 2 in Virginia, 1 in Illinois and 1 in Iowa. In 1925 the industry was represented by 18 establishments, the decrease to 17 being the net result of a loss of 2 and a gain of 1. Of the estab-

lishments lost, one was idle throughout the year and one went out of business prior to 1927. The establishment gained reported for the first time at the present census.

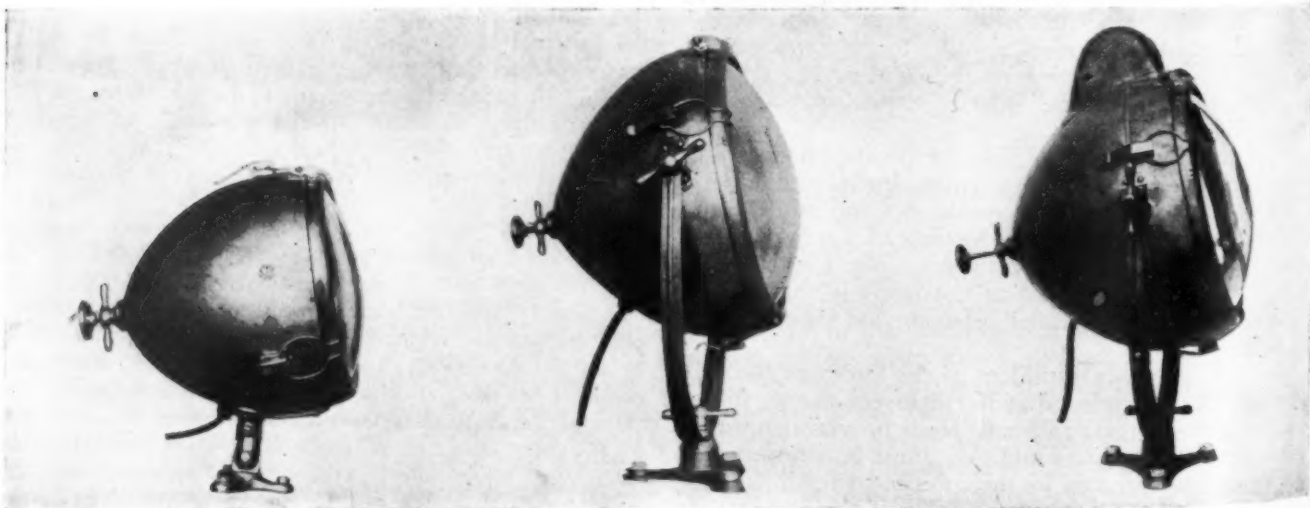
The statistics for 1927 and 1925 are summarized in the accompanying table. The figures for 1927 are preliminary and subject to correction.

### Rust-Proof, Light-Weight, Floodlighting Projectors

**A** LINE of floodlighting projectors, designed for general purpose floodlighting service, has been announced by the General Electric Company. The projectors have non-ferrous and non-rusting casings; the glass reflectors and lamps are totally enclosed so that dust and dirt cannot enter or impair their effectiveness. Since the casing is non-ferrous, good heat radiation and minimum dimensions of design are afforded and the units are light in weight. Ease and accuracy in focusing are attained through the use of universal focusing mechanisms. A small three-point base design and swivel give simple and economical mounting, with ease of installation and orientation of the floodlight beam.

The projectors are built with a formed, single-piece sheet copper casing and a single-piece door of the same material. The rear of the casing is hemispherical, and has a clearance hole for the bronze socket-holder rod which is part of the focusing mechanism. The lens is held loosely within the door by means of four punched clips, in accordance with automobile headlight practice. The reflectors are supported by punched lug supports and screw clamps, fitted with asbestos cushions to prevent breakage. The focusing mechanism is universally adjustable, consisting of a clamping chuck or collet similar to that used on lathes.

Two sizes of lens are available. These may be plain or may have lightly stippled, heavily stippled or spread-light distribution. Colored lenses are supplied with plain or heavily stippled distribution. All lenses are of heat-resisting glass. For projectors equipped with clear lenses, color plates of red, amber, blue or green are available. Where projectors are mounted close to the base of the surface to be illuminated, most efficient illumination is afforded by the combination of a new asymmetric reflector and spreadlight lens. The re-



The Projectors are Designated as Types L-29, L-30, and L-31, and Employ Respectively 250-, 500- and 1000-Watt Lamps

reflectors are of silver-plated glass, protected by copper backing. Reflectors of the same size are interchangeable in any of the projectors.

## Pennsylvania Veteran Employee Associations

PENNSYLVANIA veteran employee associations, the membership of which consists of employees who have been in the service of that railway for 20 years or more, were established on the Pittsburgh division on April 9, 1891, by 42 persons who met at the Monongahela House in Pittsburgh, Pa. Since that time, these associations have developed until at present there are 41 on the system, having a combined membership of 33,308 active and retired employees. The activities of these associations are almost entirely social.

At the annual banquet of the Chicago Terminal Division Veterans Association on October 27, 1928, a total of 250 employees were present. At that time, 98.7 per cent of the members were paying for Pennsylvania stock by payroll deduction.

Closely allied to these associations is the pension system which was established in 1900, and now covers not only the Pennsylvania Railroad company proper, but also all of its operating subsidiaries. The pension rules apply impartially and uniformly to all officers and employees, without regard to rank or duties. Retirement is compulsory in every case, upon reaching the age of 70 years. Between the ages of 65 and 70 an employee may be retired under certain circumstances, if incapacitated for the proper performance of duty.

The amount of pension paid in any case is one per cent of the average earnings of the last 10 years of active service, multiplied by the total years of service. Thus, if a man enters the company's employ at the age of 25 and retires automatically at the age of 70, he will have had 45 years' service to his credit. If his average earnings in the last 10 years were \$200 a month, his pension will be 45 per cent of \$200 or \$90 monthly.

At the close of 1928, there were 9,059 employees on the retired list. The payments during the year exceeded \$6,000,000. Since the pension system was established on January 1, 1900, the total payments have exceeded \$58,000,000, exclusive of the expense of operating the pension department. During 1928, a total of 1,129 employees were pensioned. The average increase in the number of retired employees per year since 1900 has been 281. It may be of interest to know that the oldest living pensioner at the close of 1928 was 100 years of age.

THE MEMPHIS UNION STATION on April 15 replaced its white porters, the only white red-caps in the South, with negro porters, as a matter of economy.

"THE RAINBOW" is the name of the new fast train to be put in service by the Pennsylvania from Chicago to New York on April 28. This name was submitted by John E. Danielson of Jamaica, N. Y., a brakeman on the Long Island, and he receives the prize of fifty dollars which was offered by the company. Several other employees, among the 5000 who responded, submitted this same name or one involving the word rainbow, and these others receive ten dollars each. Six other employees suggested the name "The Red Knight"; this name is accepted to be applied to the new westbound train, and each of the six employees will receive ten dollars. The first man to present this name was A. J. Kussy, bill clerk, Colehour, Ill.

## Looking Backward

### Fifty Years Ago

The officers of the Denver & Rio Grande, claiming that the Atchison, Topeka & Santa Fe has violated the principal provisions of its lease, have organized an armed force with the intention of seizing the trains and other property. To prevent this the Santa Fe has placed armed men in charge of the Rio Grande and its superintendent has telegraphed to the commander of the United States forces at Fort Garland for military assistance to protect the mails.—*Railway Age*, April 17, 1879.

The railroads no sooner agree on the pooling and division of traffic in one section of the country than they disagree on the same question in another section. The presidents of the trunk lines—the New York Central, the Erie, the Pennsylvania and the Baltimore & Ohio—met at New York on April 9 and 10 to consider the division of eastbound traffic at Baltimore, Philadelphia and Boston and on April 12 the Southwestern Railway Association was dissolved after failure of the member roads to agree on the percentage of business to be allotted to the new Kansas City line of the Chicago & Alton.—*Railroad Gazette*, April 18, 1879.

In the United States Senate, on April 8, Senator Kirkwood of Iowa introduced a bill to organize "the National Railway Company of the United States" through which it is proposed to appoint a board of commissioners who will have the power to purchase, lease, consolidate, construct and operate a line of railway, with two or more tracks, from Boston, via New York, through New Jersey, Pennsylvania, West Virginia, Ohio, Indiana, Illinois and Iowa to Council Bluffs, Ia. The bill contains elaborate prohibitions of excessive charges, discriminations and pooling combinations with other roads.—*Railroad Gazette*, April 18, 1879.

### Twenty-Five Years Ago

The new office of supervisor of wages has been created on the Missouri-Kansas-Texas and it is expected by this means to relieve the heads of departments of a large amount of detail work in reference to questions of wages, rules and working conditions.—*Railway and Engineering Review*, April 23, 1904.

The creation of the offices of traffic director and director of maintenance and operation for all lines of the Union Pacific system, including the Oregon Railroad & Navigation Company, the Oregon Short Line and the Southern Pacific, and the location of these executives at Chicago, 500 miles from the nearest rail in the system, is a new and extremely interesting departure in railway management. The actual head of this organization, E. H. Harriman, has his headquarters at New York.—*Railway Age*, April 22, 1904.

### Ten Years Ago

John Cannon, general superintendent of the Eastern district of the Missouri Pacific, has been appointed general superintendent of transportation, with headquarters at St. Louis, Mo. Mr. Cannon replaces James A. Somerville, who has been appointed general manager of the Texas & Pacific and the Gulf, Texas and Western with headquarters at Dallas, Tex.—*Railway Age*, April 18, 1919.

In response to the invitation sent out by the manager of the inspection and test section of the Railroad Administration some 60 representatives of railroads and draft gear manufacturers assembled at Rochester, N. Y., on April 10 and 11 to witness demonstrations of the methods being followed by the test section in arriving at its conclusions as to the matter of draft gear sufficiency.—*Railway Review*, April 19, 1919.

## Communications and Books

### Yard Costs

PUNXSUTAWNEY, PA.

TO THE EDITOR:

In reading the editorial in the *Railway Age* of March 2, in regard to controlling yard costs, I note that the Northern Pacific is using daily yard statistics to excellent advantage, and that the yard department is receiving this from the general office. About 24 years ago, we adopted and made up a report in the general yardmaster's office showing the cost per car. This also showed the cost for the year previous, and was based on the number of cars handled each day. It was a daily report. I then had a weekly report made up, showing the cost per day for the week, which was available for all yard conductors and assistant yardmasters. I found that by doing this the men all became interested. We set a figure at about what the cost should be so we would have something to shoot at, and we sometimes curtailed the service in order to keep the cost down. By making this report in the general yardmaster's office, everyone connected with the operation was willing to do everything possible to keep the expense down. It was my thought that this was better than getting the information through the general office.

R. L. MOORE,  
Assistant Superintendent  
Buffalo, Rochester & Pittsburgh.

### Paying Bills

CHICAGO, ILL.

TO THE EDITOR:

Your editorial entitled "Delay in Paying Bills," published in the issue of March 16, was read with great interest. We hope it will be noticed by the accounting and treasury departments of the railroads.

Railroads invariably take from 30 to 60 days extra time to pay their bills; sometimes longer. I have a case before me where one of the largest railways owes \$300 on an August, 1928, invoice and \$600 on a November, 1928, invoice. We were advised three months ago that the invoices had been vouchered but notwithstanding continuous correspondence the bills remain unpaid. There were no controversies concerning the items.

If most of our business was with the railroads, we should have to add an item for interest to our selling costs, because we borrow money for which we must pay current interest rates.

VICE-PRESIDENT

### New Book

*Industrial Explorers.* By Maurice Holland, in collaboration with Henry F. Pringle. Bound in cloth, 347 pages, 5½ in. by 8½ in. Published by Harper & Brothers. New York. Price \$3.00.

This book is an attempt to dramatize the work and personalities of the industrial research leaders—the "industrial explorers on the frontier of industry." These men are constantly striving to acquire an "accelerated experience" in their efforts to push beyond the borders of the unknown. The American research army numbers about 30,000 Mr. Holland informs us, and its cost of maintenance is nearly one-half million dollars a day. A new laboratory discovery may mean a new industry, the expansion of an existing industry, or its obsolescence, the author reminds us, and then peering into the future, he speculates that, "The day will come, and shortly, when before granting a loan, the banker will insist on asking embarrassing questions regarding the research policy of his client. For future trends in trade can be read with uncanny accuracy by those who know their laboratories." Accurate non-technical presentations of their work, and intimate word por-

traits of the personalities directing the work of industrial research are found in this book, although there is a noticeable vagueness, at times, as to their individual exploits and the importance of their respective contributions to our economic and social well-being. The industries referred to include the electrical, communication, steel, paper, glass, cement, brass, explosives, baking, canning, fisheries, photographic and aviation industries.

### Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,  
Bureau of Railway Economics, Washington, D. C.)

#### Books and Pamphlets

*Comparison of American Legislation and the International Convention for the Unification of Certain Rules Relating to Bills of Lading*, by Watson A. Baumert. "At the present time, when world shipping is constantly increasing in tonnage and Latin American trade is steadily expanding, bill of lading uniformity becomes continually more important." p. iii. Issued by Central Executive Council, Inter American High Commission. 54 p. Pub. by U. S. Govt. Print. Off., Washington, D. C. 10 cents.

*Employment for Americans in Latin America*, by George J. Eder. The cost of living figures by countries on page 3 and the frank discussion by the Chief of the Latin American Section, Division of Regional Information, Department of Commerce, on opportunities, drawbacks, and so on for railwaymen (p. 9) and others may have some effect on certain cases of spring fever. 20 p. Pub. by U. S. Govt. Print. Office, Washington, D. C., Apply to Division of Regional Information, Department of Commerce.

*Interstate Commerce Commission.* Chart as of March 1, 1929 prepared to show organization of and outline functions of the Interstate Commerce Commission. Published by Research Office, National Association of Owners of Railroad and Public Utility Securities, Inc., Washington, D. C., 10 cents.

*Music in Industry*, by Kenneth S. Clark. Chapter V "The Casey Jones Motif" describes the bands, glee clubs and other musical activities of railroad employees. Illustrated with pictures of a Katy band, a Duluth, Missabe & Northern band, and the Baltimore & Ohio Glee Club. Condensed reports by states and cities, p. 214-383, show railroad and other musical organizations in each, and how supported. 383 p. Pub. by National Bureau for the Advancement of Music, New York City. \$2.50.

*The Road to Oregon*, by W. J. Ghent. An absorbing history of a route that has been traversed by many types of transportation from Indian runners to railroads. 274 p. Pub. by Longmans, Green & Co., New York City. \$5.00.

*Water Transportation 1926*, by U. S. Bureau of the Census. Statistics of equipment owned by types, commercial, non-commercial and idle. Table 55 shows railroad-owned freight and passenger vessels, tugs and towing vessels and ferryboats. "Railroad companies, in 1926, were the largest owners of ferryboats (45.1 per cent) and of the gross tonnage of ferryboats (68.3 per cent)." p. 84. 172 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., 25 cents.

#### Periodical Articles

*An American to Help China Run Its Railways*, by Oliver McKee, Jr. John J. Mantell, formerly vice-president of the Erie. "It is a big assignment, even if the total mileage in China—about 10,000—is much less than that of many a single American system. For upon transportation depends in no small degree the success or failure of the Nationalist program for the unification of China," Boston Evening Transcript, April 11, 1929, p. 17, col. 3-4.

*A Century of the Iron Horse*, by Edward Hungerford. "From rails to planes." Illustrated. St. Nicholas, April 1929, p. 431-435.

# Odds and Ends of Railroading

## Oldest Paint Brush?

J. E. Tickle, carman helper at the Pulaski shops of the Norfolk & Western, claims a world's record for his paint brush. He began using it on January 1, 1923, and from that date until it was honorably retired on January 1, 1929, he used it to paint out airbrake dates on more than 5,100 cars.

## Another Arrival

The Nashville, Chattanooga & St. Louis is the latest recipient of a visit from the stork. A ten-pound boy was born on one of its trains, just after it left Hickman, Ky., recently. The mother had a complete layette in her suitcase, so that the baby was dressed in a full outfit before being taken from the train.

## Three Generations of Section Foremen

In 1874, William Dartnall took the job as foreman of the Rymal section on what is now the London division of the Canadian National, and since that time the job has been a hereditary one. E. W. Dartnall succeeded his father as foreman of the Rymal section, and he in turn was succeeded by his son, E. G. Dartnall, who still holds the job. The Rymal section has, therefore, been supervised by Dartnalls for 55 years.

## Like Father—Like Grandson

Two names, once prominent in the history of the Buffalo, Rochester & Pittsburgh, have been returned to the payrolls by the grandsons of the original holders. George E. Merchant, who has been appointed coal traffic agent, is the grandson of George E. Merchant, who was general manager of the Rochester and Pittsburgh Railway in 1881. Robert L. Yates, newly appointed soliciting freight agent, is the grandson of Arthur G. Yates, who was president of the B. R. & P. in 1890.

## Carries Bible 186,000 Miles

W. W. Lewis, retired baggagemaster of the Maryland Division of the Pennsylvania recently exhibited at a "Bible Night" service in Wilmington, Del., a Bible which he has carried more than 186,000 miles, or about seven times the distance around the earth. He has carried the Bible with him ever since he entered the service of the railroad as a young man and has read the book through at least two times a year since that time. He entered the service in April, 1888, as a freight brakeman and was retired to the "Honor Roll" on October 1, 1925. He is 74 years old.

## C. & N. W. to Paint All Its Cars Green

So it's all aboard with one accord,  
Ye commuters (a shivery troop)  
Hear the banshee shriek of our "green streak,"  
As it roars to the rumbling loop.  
Sure, we'll all feel gay ere Shamrock day  
And the little green buds we bless.  
Hail the 5:15 with its coat of green—  
'Tis the Emerald Isle express!

—Chicago Daily News

## Saves Child from Flames

Brakeman James H. Kirby of the Maryland division of the Pennsylvania showed quick action and bravery a short time ago when he rushed into a burning building to save a little negro boy who was sick in bed on the third floor, and who might have burned to death. On this particular day, Kirby was working with a shifting crew, south of Paschall, and while the crew was busy with its duties, fireman Harry Yocum noticed a row of three houses afire along the right-of-way. The engine was cut loose from a string of cars and was switched over to a track near the burning houses, where a stream of water from the engine was played on the fire. The child's mother

came screaming out of one of the houses asking someone to save the lad. Kirby, who was helping with the hose, dashed into the house and, wrapping the boy in a blanket, brought him quickly down-stairs. When he reached the bottom floor he discovered two more children whom he gathered up and took out through the smoke-filled house to their mother, who anxiously awaited them in the street. The engine crew had a stream of water playing on the fire ten minutes before any city apparatus arrived on the scene.

## Mr. Hutchison's Past

Forty-nine years ago, James E. Hutchison, a native of Waverly, Ill., proudly viewed a circular fresh from the press, announcing his appointment to his first supervisory position, that of assistant train dispatcher, or trainmaster, as the position would now be called, on the Chicago & Alton. With justifiable pride, he mailed one of the circulars to his friend H. E. Lamb, a former fellow telegrapher, then employed on the Great Northern in Minnesota, with this inscription: "73, Old Pard, Jim." In December, 1928, the same Jim Hutchison was vice-president in charge of operation of the St. Louis-San

*The "Old Pard" congratulates you upon having weathered so many years of service, and wishes for you good health, happiness and continued prosperity in the forty-ninth year since this appointment.*

*H. E. Lamb, Worthington, Minn.  
December 27<sup>th</sup> 1928.*

## Chicago & Alton Railroad.

JACKSONVILLE DIVISION.

Superintendent's Office,

Roadhouse, January 20th, 1880.

Mr. J. E. HUTCHINSON is appointed Assistant Train

Dispatcher of the Jacksonville Division.

T. M. BATES,

Superintendent Jacksonville Division.

Approved:

C. H. CHAPPELL,

Ass't Gen'l Superintendent.

*"73 Old Pard  
Jim"*

Francisco. Chancing to see his name in the news dispatches, his old friend Lamb dug up the circular he had saved for nearly half a century. From Worthington, Minn., he mailed it to Mr. Hutchison, with this inscription: "The old pard congratulates you on having weathered so many years of service and wishes for you good health, happiness and continued prosperity in the forty-ninth year since this appointment." A replica of the circular appears on this page—in which, it will be observed, Mr. Hutchison's name was misspelled as it has been many times since.



LEE DENNIS, a member of the Montana Board of Railroad Commissioners, has been made chairman of that body, to succeed Daniel Boyle, who has resigned.

THE COMMITTEE ON CAR SERVICE of the American Railway Association, at a meeting in Detroit, Mich., elected J. L. Brown, general superintendent of transportation, Chicago, Milwaukee, St. Paul & Pacific, Chicago, as chairman. W. G. Curren, general manager, New York Terminal lines, Baltimore & Ohio, New York, was elected vice-chairman.

OSCAR B. COLQUITT, former governor of Texas, has been appointed a member of the United States Board of Mediation for a term expiring five years after January 1, 1929, succeeding Pat M. Neff, whose re-appointment at the expiration of his term was not confirmed by the Senate at the last session. The nomination was sent to the Senate on April 16 by President Hoover.

THE GRADE CROSSING LAWS of New York have been amended by Chapter 431, recently enacted, so as to provide that within the city of New York the cost of eliminating grade crossings shall be borne in the proportion of 50 per cent by the railroad, 49 per cent by the state and only one per cent by the city. Heretofore, the portion to be paid by the city was 10 per cent. By another law, Chapter 535, the city of Buffalo is relieved the same as the city of New York.

THE CITY COUNCIL of Bloomington, Ind., on April 2 passed a special ordinance appropriating \$1,000 to pay the expenses of an attorney to assist the Chicago, Indianapolis & Louisville in its opposition to the proposal that it be merged with the Baltimore & Ohio. Frank B. Faris of Bloomington, former senior examiner of the valuation department of the Interstate Commerce Commission, has been engaged by the city for this work. The Baltimore & Ohio proposal to include the Monon in its consolidation plans has evoked protests from a number of other sources, including the stockholders of the latter railroad and the Public Service Commission of Indiana which has directed the attorney general of Indiana to intervene in any In-

terstate Commerce Commission hearings on the subject.

### Southern Pacific in Mexico

The losses sustained by the Southern Pacific of Mexico in consequence of the destruction worked in connection with the revolution in that country, has been estimated to be more than \$5,000,000. About 150 wooden bridges have been burnt or demolished.

### Railroad Legislation Not Expected at Special Session

A few railroad bills were introduced in Congress on the first days of the special session which began on April 15 but at this time no action on this character of legislation is expected at the special session and the House committee on interstate and foreign commerce has not been organized. It is the hope of the leaders to confine the session to agricultural relief and tariff legislation but as the Senate is a continuing body its committees are already organized and efforts will probably be made to obtain consideration for miscellaneous legislation. The bills introduced thus far have been those that had been put in in previous sessions and not acted upon.

Representative Summers, of Washington, introduced as H. R. 3 his proposal to amend section 17 of the interstate commerce act, as desired by the Interstate Commerce Commission, to authorize it to delegate certain of its functions to individual members of the commission or to subordinates. Representative James introduced as H. R. 30 a proposal to provide for the carrying of officers and enlisted men of the military and naval services while on leave of absence or furlough at reduced rates. Representative Kelly has reintroduced as H. R. 100 a bill to provide for steel cars in the railway post-office service. Representative La Guardia has introduced as H. R. 119 a bill to prohibit the sending and receipt of stolen property through interstate commerce.

Senator James M. Couzens, of Michigan, who is expected to be elected chairman of the Senate committee on interstate commerce to succeed Senator Wat-

son, has indicated that he sees no advantage in pressing the Fess consolidation bill at this time and he desires further consideration of the bill, particularly with a view to making its provisions cover holding companies that own a controlling interest in two or more railroads.

### Centralize Ferry Services at San Francisco

Southern Pacific Golden Gate Ferries, Ltd., a newly formed company, has been authorized by the Railroad Commission of California to acquire the ferry properties of the Southern Pacific, the Northwestern Pacific and three independent vehicle ferrying companies operating between San Francisco, Cal., Oakland and other points on San Francisco bay. The new company will operate all of the automobile ferry services under a centralized control and will obviate competition between the various companies, which has been particularly keen between San Francisco and Sausalito. Authorization has also been granted for the sale of \$10,000,000 of bonds and 210,000 shares of common stock of no par value.

### Supreme Court to Review Los Angeles Station Case

The Supreme Court of the United States on April 15 granted a petition of the Interstate Commerce Commission for a writ of certiorari to the court of appeals of the District of Columbia providing for a review of the decision by which the lower court held that the Interstate Commerce Commission had power to require the railroads serving the city of Los Angeles, Cal., to construct a union passenger terminal. The commission held that it was without power to require the construction of the station but issued a certificate of public convenience and necessity and held that the ability of the roads properly to serve the public would not be impaired by the construction of a terminal in accordance with the desires of the city and the state.

### Protective Section, A. R. A.

The Protective Section of the American Railway Association, opened its regular annual meeting at Atlanta, Ga., on

April 16, chairman T. T. Keliher (Ill. Cent.) presiding. The annual reports presented show that the losses of freight by theft and robbery during the past year were the lowest since 1914; a total of \$928,563 which is \$222,573 less than the total paid in 1927. The increase in the efficiency of the police forces of the railroads has been so marked that it is deemed fair to say that the great body of tramps formerly infesting railroad lines has been virtually driven off. It is estimated that the railroads move, in a year approximately 17,000,000 carloads of valuable merchandise. The number of arrests made during the year for felonies was 9,353 and for misdemeanors 86,089; and convictions were obtained in 97 per cent of the cases tried in court.

### Illinois Central Reports Operations in Terms of "Pennies"

The Illinois Central has issued a pamphlet prepared by L. A. Downs, president, which sets forth the unit earnings of the railroad in 1928 in terms of pennies (cents). Freight revenues made up 75.65 pennies and passenger revenue 13.37 pennies of the average dollar of receipts in 1928 and an average of 914 thousandths of one cent was received for each ton hauled one mile. An average of 2.722 pennies were received for each passenger carried one mile. Of the dollar that the railroad earned, it required 27.89 pennies to maintain the property, 27.08 pennies to operate transportation service, 5.58 pennies to provide fuel, 12.85 pennies to provide other operating expenses, 4.89 pennies to pay rentals, 8.71 pennies to pay interest and 6.52 pennies to pay taxes. This left 5.66 pennies with which to pay the stockholders and 1.42 pennies that might be used for improvements.

### New York Legislation

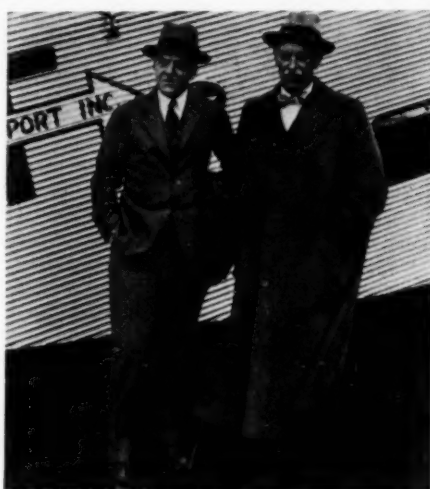
The Governor of New York has approved a new law, Chapter 638, which regulates the relations between a railroad and a motor coach corporation, where the railroad contracts with the motor coach concern for the use of motor vehicles in place of railroad cars. The Governor has, however, vetoed two bills, introduced by Mr. Thayer, which were designed to make motor vehicles, operated between fixed termini, common carriers; and putting them under the supervision of the Public Service Commission. The Governor says that these bills were opposed by mayors, by bar associations and by the city of New York. The proposed laws would have regulated not only motor coaches but long distance trucking concerns and other enterprises.

The Governor on April 16 approved the bill creating a temporary state commission to make a thorough study of the Public Service Commission law of the state. He says that this and cognate laws are in great need of amendment.

The Governor, on April 15, approved a number of laws relating to grade crossings, including Chapter 656 under which the city of Syracuse will have to pay only one per cent of the cost of the elimination of grade crossings of highways and railroads within the city.

### General Atterbury Uses Plane from Chicago to Omaha

General W. W. Atterbury, president of the Pennsylvania, flew from Chicago to Omaha, Neb. on April 15 to fill an evening speaking engagement before the Ad-Sells Club. General Atterbury and J. L. Eysmans, vice-president in charge of traffic of the Pennsylvania and a director of the Transcontinental Air



General Atterbury (right) and J. L. Eysmans About to Take Off

Transport, Inc., hopped off at nine o'clock from the Chicago Municipal Airport in the "City of Columbus", the office plane which Colonel Lindbergh ordinarily uses on his flights for the T. A. T. The plane was piloted for Gen. Atterbury and Mr. Eysmans by John A. Collings, chief pilot for Transcontinental Air Transport. Present plans contemplate inauguration of the T. A. T. air-rail service about July 1.

### P. R. R. Teletypes in New York Terminal

The car-tracing bureau of the Pennsylvania Railroad at Jersey City, N. J., keeping records of freight car movements at all the terminals in and around New York, is now equipped with teletype circuits so that the records, which cover about 5000 car numbers daily, are transmitted to the central office promptly by teletype from the four large yards—Waverly, Meadows, Harsimus Cove and Greenville. At Greenville, there are two sending stations, one at the general yardmaster's office and one at the float bridge; and the wire system includes also the yard at West Morrisville, Pa., about 60 miles from New York. With the installation of this system of communication, the car records in the different yards have been dispensed with, and the single master record at Jersey City takes the place of all. The teletype circuits are kept in operation 24 hours a day; and to insure complete westbound records, the lists are not closed until 3 a.m. Eight passing reports are made daily and copies are sent to 86 different freight agents and others, many going to distant states.

The teletype system has supplanted a large amount of telephone and ordinary telegraph service.

## Traffic

The Interstate Commerce Commission has dismissed a complaint filed by the San Diego, (Cal.) Chamber of Commerce involving the round-trip all-year tourist and summer excursion transcontinental passenger fares via San Diego in connection with certain diverse route tickets to or from San Francisco, finding that the rates are not unreasonable. San Diego had complained against the addition of certain arbitraries of \$7.40 and \$6 by which the fares over routes via San Diego exceeded those over other routes.

At the annual meeting of the Associated Traffic Clubs of America at New York on April 10 and 11, the following officers were elected: President, T. T. Harkrader, traffic director of the American Tobacco Company, New York; executive vice-president, T. B. Curtis, general agent of the Charleston & Western Carolina; first vice-president, R. C. Bray; second vice-president, P. R. Flanagan, assistant general freight agent of the Chicago Great Western; and third vice-president, W. E. Butterbaugh, professor of transportation at the University of Minnesota. F. A. Doebber, secretary and W. T. Vandenburg, treasurer were reelected.

### Federal Control of Intrastate Rates

The Supreme Court of the United States on April 8 held that the order of a statutory three-judge court denying the state of Alabama and the Alabama Public Service Commission an injunction restraining the railways from putting into effect an order of the Interstate Commerce Commission increasing intrastate rates on fertilizers was not an abuse of discretion. Without deciding on the merits the court affirmed the decree of the lower court.

### Baltimore & Ohio Farmers' Train

The "Better Dairy Sire Special," which is being run by the Baltimore & Ohio this year, consists of 10 cars, the most elaborate equipment of the kind ever sent out. The train will be run between April 8 and April 27, through the states of Maryland, West Virginia, Ohio, Indiana and Illinois, and will stop at 33 places. There is a lecture car, an exhibit car—in which, among other things, are numerous electrical exhibits—and five live stock cars, in which a stall is provided for each animal. There is a platform car for exhibiting animals, a dining car and a sleeping car for lecturers and others on the train.

This train starts out with 50 pure-bred bulls that will be sold at prices below their actual value.

The general agricultural agent of the Baltimore & Ohio is O. K. Quivey. He manages also a soil improvement special, a pure-bred ram special, a swine sanitation special and a poultry improvement special.

### Missouri Pacific Adds Rail-Air Service

The Missouri Pacific has changed the arrival time of "The Pioneer" at Brownsville, Tex., to accommodate a rail-air service from San Antonio, St. Louis and other northern cities to Mexico City. The use of airplanes will make possible a saving of more than 30 hours as compared with the all rail service to Mexico City. Because of atmospheric conditions in Mexico it has been found advisable for passenger planes to reach Mexico City not later than 1:45 p.m. which necessitates a departure from Brownsville at 8:30 a.m. To accommodate the new plane departure time, The Pioneer will arrive in Brownsville at 7:30 a.m. Arrangements have been made for the sale of through tickets and reservations over the rail-air route. During March this joint service was used by more than 300 passengers.

### Freight Traffic in February

The volume of freight traffic handled by the Class I railroads in February amounted to 38,128,548,000 net ton-miles, the greatest for any February on record, according to reports compiled by the Bureau of Railway Economics. This exceeded by 869,760,000 net ton-miles, or 2.3 per cent, the best previous record for any February, which was made in 1927. It also exceeded by 2,405,710,000 net ton-miles, or 6.7 per cent, the traffic handled in February, 1928.

In the Eastern district there was an increase of 10.1 per cent in February, 1929, compared with the same month in 1928, while the Southern district reported an increase of 1.8 per cent. The Western district reported an increase of 4.2 per cent.

The traffic for the first two months in 1929 amounted to 77,329,417,000 net ton-miles, an increase of 7.4 per cent over that of the corresponding period in 1928. It also was an increase of 1.1 per cent over the same period in 1927. Railroads in the Eastern district for the two months reported an increase of 11 per cent, while the Southern district reported an increase of 2.1 per cent. The Western district reported an increase of 4.5 per cent.

The average daily movement per freight car for February was 32.4 miles, which figure has never been reached in previous years until early fall. This was an increase of 2.6 miles over the average for the same month last year and two miles above that of February, 1927.

The average speed of freight trains in February was 12.8 miles per hour, an increase of one-tenth of a mile above that of February last year and an increase of seven-tenths of a mile above February, 1927.

The average load per car in February was 27.3 tons, including less than carload freight as well as carload freight. This was an increase of seven-tenths of one ton over the average for February, 1928, but a decrease of seven-tenths of one ton under that of February, 1927.

## Foreign

### Schmidt-Henschel Locomotive for the London, Midland & Scottish Railway

It is reported that the design of a high-pressure locomotive has been started by the London, Midland & Scottish (Great Britain). The boiler is a modification of the Schmidt-Henschel high-pressure locomotive boiler, and is being designed to suit one of the "Royal Scot" class of locomotives used by that railway. The low-pressure section of the boiler will operate at a pressure of 200 lb. per sq. in. and the high-pressure section at 1,300 lb.

The Royal Scot class of locomotives are those which are used on the non-stop runs between London and the Scottish border.

### Ownership of British Railways

An analysis of the distribution of British railway securities appears in the March issue of "Railway Newsletter", publicity organ of these roads. It points out that the £1,200,000,000 (\$5,744,000,000) invested in the railways of Great Britain was secured from more investors than are represented among the owners of any other type of British security save only British government stocks.

The books of the railway companies list 800,000 individual holdings. Of this total more than half represents holdings of £500 (\$2,435) or less. The analysis further points out that the very large holdings of insurance companies, investment trusts, banks, trade unions, building societies and other institutions do not merely represent individual interests but oftentimes include thousands of participants in the ownership of these large security holding corporations. The largest investor is a leading insurance company.

By the Railways Act of 1844 and more recently by the Railways Act, 1921, the statement continues, the remuneration of railway capital has been strictly limited in an upward direction but no corresponding steps have been taken by the government to ensure that, coupled with this limitation, there should be any real security for a minimum remuneration. The present return, it is pointed out, is less than four per cent and this is inadequate to attract further capital to provide for railway growth.

This latter situation is all the more strange, the study concludes, in view of the fact that the British railway system is the only large system in the world which has been developed without some form of direct or indirect public subsidy.

### Construction of New Swiss Terminal Is Progressing

Work is now well under way on the new freight terminal at Basel, Switzerland, according to a recent report of the Department of Commerce. This terminal, on which work was begun as early as 1924, will be one of the largest on

the Continent when it is completed, and an idea of its proportions can be realized in the fact that the present plans will require 15 more years for completion. The total cost of the project will be about 37,000,000 Swiss francs, or \$7,041,000. It is expected that half of the terminal will be ready for use within the next four years.

The main switching yard of the first section to be completed will have 39 tracks with a total length of track in the yard of about 25 kilometers or 15 miles, which with all the secondary switching yards and all approaches, will comprise a total trackage of 55 kilometers or about 34 miles. The second section will be a separate system and of the same proportions as the first. It will be constructed parallel to the first section. When both sections are completed, one will be used for traffic from the west to east and the other for traffic from east to west. The construction of more than 12 bridges will be required to obviate the level crossings with roads and carry the new alignment of the main line and approaches over small streams to the yards.

The new terminal will have a capacity for 7,000 to 8,000 cars daily. The average number of cars handled at present in the old yards is about 3,000 daily. The improvement will include the construction of new freight, office, and station buildings, sheds, warehouses, round houses and repair shops.

### New Rail Route Facilitates Service in Sudan

A new rail line has been recently opened for service in the Anglo-Egyptian Sudan known as the Haiya-Kassala-Makwar line of the Sudan Government Railways. The latest section of the route to be finished was between Kassala and Makwar, a distance of some 274 miles. The 217 miles of railway between Haiya and Kassala was completed in 1924, which with the newly opened section makes a total of 491 miles and the total track mileage involved is 520 miles. The total cost of the project, including locomotives and rolling stock was about £2,750,000, or \$13,365,000. The road has its terminal at Haiya Junction, 168 miles from Atbara, on the Red Sea line, and 126 miles from Port Sudan, running almost due south through the Red Sea and Kassala provinces to Kassala. The northern end of the route was laid with jarrah wood ties, but steel ties had to be utilized on the southern section because of the presence of white ants in that vicinity. The objects of the construction of the line were to provide a rapid means of transportation to the Red Sea for the cotton grown in the cotton estates north of Kassala; to provide a means of tapping the fertile, but undeveloped areas lying between the Atbara and Blue Nile rivers, and the provision of an alternative route to the Red Sea for the valuable produce emanating from Central Sudan, thus providing relief to the existing main line between Sennar and Khartoum, already overburdened. The new railway connects with the Sennar Khartoum route at Makwar.

## Equipment and Supplies

### Locomotives

THE DENVER & RIO GRANDE WESTERN has ordered four 4-8-2 type locomotives from the Baldwin Locomotive Works.

THE SOROCABANA RAILWAY, Sao Paulo, Brazil, has ordered five locomotives of the 4-10-2 type from the American Locomotive Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered five 4-8-2 type locomotives from the American Locomotive Company. This is in addition to 25 locomotives ordered from the same builder as reported in the *Railway Age* of April 6.

### Freight Cars

GRAND TRUNK WESTERN—See Canadian National.

THE UNION PACIFIC is inquiring for 300 automobile box cars of 50 tons' capacity.

THE NORTHERN PACIFIC has ordered 200 automobile cars of 40 tons' capacity and 300 automobile cars of 50 tons' capacity from the Pacific Car & Foundry Company. Inquiry for this equipment was recorded in the *Railway Age* of February 16.

THE CANADIAN NATIONAL has ordered 1,000 automobile cars of 40 tons' capacity with side and end doors from the Pressed Steel Car Company, and 1,000 automobile cars of 40 tons' capacity with side doors from the Pullman Car & Manufacturing Corporation for service on the Grand Trunk Western.

THE CHESAPEAKE & OHIO has ordered 577 steel hopper bottom gondola car bodies of 70-tons' capacity from the Richmond Car Works, Inc. Inquiry for this equipment was reported in the *Railway Age* of March 23.

### Passenger Cars

THE SOUTHERN PACIFIC is inquiring for 15 chair cars.

THE MANILA RAILWAY is inquiring for 20 third class passenger coaches 65 ft. long.

THE DENVER & SALT LAKE has ordered one steel baggage and mail car, 71 ft. long, and one baggage car, 70 ft. long, from the American Car & Foundry Company.

THE NEW YORK, CHICAGO & ST. LOUIS is inquiring for eight coaches, five baggage cars, 60 ft. long, three baggage cars, 70 ft. long, two dining cars and two cafe coaches.

THE BALTIMORE & OHIO has ordered five dining cars from the Pullman Car &

Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 9.

THE HOCKING VALLEY has ordered three all steel mail and express cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 16.

THE ERIE has ordered 10 steel baggage and express cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 23.

THE NORTHERN PACIFIC's seven gas-electric rail-motor cars reported in the *Railway Age* of March 23 as ordered from the St. Louis Car Company and to be equipped with Electro-Motive Company power plants will have on five cars electrical equipment of the Westinghouse type 182 generator, 559-DH-2 traction motors and differential field, type K control. The other two cars which are of the double power plant type with a total capacity of 600 hp. will each have two Westinghouse type 182 generators and four 559-DH-2 motors and differential field, type K control.

### Iron and Steel

THE SOUTHERN PACIFIC has ordered 300 tons of structural steel for bridge work at San Francisco, Cal., from the Virginia Bridge & Iron Co.

THE PENNSYLVANIA has ordered 1,835 tons of structural steel for a bridge at Gnadenhutten, Ohio, from the McClintic-Marshall Co.

### Machinery and Tools

THE CHICAGO & NORTH WESTERN is inquiring for two 16-in. lathes.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for an 18-in. lathe.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for a combination punch and shear.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered two maintenance locomotive cranes from the Orton Crane & Shovel Co.

THE MISSOURI PACIFIC has ordered, from Manning, Maxwell & Moore, Inc., two Bridgeport Safety Emery Wheel Company heavy duty face and guide bar grinders, to operate on 440-volt, three-phase 60-cycle. One machine is for use in its shops at Sedalia, Mo., and the other for its North Little Rock, Ark. shops.

### Signaling

#### Dispatcher Control on Burlington

The Chicago, Burlington & Quincy has ordered from the Union Switch & Signal Company material for installation of dispatcher control block signaling on its line between Red Oak, Iowa, and Balfour, 24 miles, single track. The dispatcher will be situated at Red Oak and will operate switches and signals at 13 remote locations. Twenty dual control switch movements will be installed, with the necessary signals.

THE CHICAGO & NORTHWESTERN has ordered from the General Railway Signal Company 35 sets of locomotive apparatus for automatic train control.

THE CHICAGO, BURLINGTON & QUINCY has ordered from the General Railway Signal Company, 223 color-light signals, type D; 13 model 5-B switch machines, and other material, for shipment to Aurora, Ill.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered from the General Railway Signal Company material for an all-electric car-retarder system for Providence, R. I. The order includes 19 retarders, type B, 34 switch machines and three control machines.

THE TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS has ordered from the Union Switch & Signal Company material for an addition to the electro-pneumatic interlocking machine at Tower No. 1, St. Louis, 87 levers. This signaling plant is being enlarged by the addition of 50 switch movements, 103 color-light dwarf signals and other facilities. When the enlargement is completed, 588 functions will be operated from one machine, said to be the largest number of operated units controlled from one power interlocking machine anywhere.

THE NUMBER OF NEW INDUSTRIES established at points on the lines of the Chesapeake & Ohio in the year 1928, was 206, and in the same time 40 existing plants reported large increases in capacity. Eight plants which had been idle since 1926 have resumed operation.

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Night Scene on the New Haven

## Supply Trade

**Fairmont Railway Motors, Inc.**, Fairmont, Minn., has moved its New York office to 2612 Grand Central Terminal building.

The **American Steel Foundries**, Chicago, will spend \$500,000 for enlarging its wheel manufacturing facilities at Alliance, Ohio.

**Henry A. Barren**, vice-president in charge of the operations of the **American Steel & Wire Co.**, has resigned after 52 years of service.

The **Sullivan Machinery Company** will move its general offices from the Peoples' Gas Building, Chicago, to the Wrigley Building on May 1.

The **Chicago-Cleveland Car Roofing Company** has moved its general offices to the Willoughby Tower, 8 So. Michigan avenue, Chicago.

The **Hopkins Company**, Marquette building, Chicago, has been appointed representative for the western territory of the **American Track Barrow**, Lowell, Mass.

The **Industrial Brownhoist Corporation**, Cleveland, Ohio, will move its Pittsburgh, Pa., office on April 20, from the Oliver building to the new Koppers building. **L. Kleinhans** will continue in charge of this office.

The **Inland Steel Company**, on May 1, will move its Milwaukee, Wis., district sales office from the Majestic building to the Bankers building, 84 E. Wisconsin avenue.

**S. H. Truitt**, assistant sales manager at Philadelphia, Pa., of the **Central Alloy Steel Corporation**, Massillon, Ohio, has been appointed district sales manager of the Philadelphia district succeeding **C. C. Willits**, resigned.

The **Hopkins Company**, Chicago, has been organized to sell railway and industrial supplies. **C. F. Hopkins**, formerly assistant to the president of the E. A. Lundy Company and vice-president of the A. & H. Corporation, is president of the new company.

The **Toledo Scale Company**, Toledo, Ohio, has bought 80 acres of land at Toledo, as a site for new factory buildings. Construction contracts will be awarded immediately and the new plant is expected to be ready for occupancy by January, 1930.

**William C. Dickerman**, vice-president in charge of operation of the American Car & Foundry Co., has been elected president and a director of the American Locomotive Co. He succeeds as president, **William H. Woodin**, who will remain as chairman of the board.

The **Fairfield Engineering Company**, Marion, Ohio, designers and builders of Fairfield locomotive coaling equipment

and cinder conveyors, has opened an office in the Transportation building, Chicago and **Roy Franklin Repasz**, formerly with **William Robertson & Co.**, has been appointed manager of railway sales with headquarters in the Chicago office.

The **Railroad Supply Company**, Chicago, has purchased the railroad signal and railway supply departments of the **L. S. Brach Manufacturing Corporation**, Newark, N. J., and has combined them with the former company. **G. Gort**, vice-president and sales manager of the L. S. Brach Manufacturing Corporation, has been appointed sales representative of the Railroad Supply Company with headquarters at New York.

**George W. Kydd**, signal valuation engineer of the Baltimore & Ohio has resigned to specialize in railroad sales work for the **Standard Underground Cable Company**, division of **General Cable Corporation**, Chicago.

### Poor and Company

The annual report for the year ending December 31, 1928, shows net profits available for dividends, after all charges including federal tax reserve, amounting to \$1,416,223, equal, after the cumulative dividend of \$1.50 per share on the preference stock, to \$1,176,223 or \$3.67 per share available for the common stock. After dividends of \$2 per share on the preference stock, the maximum to which it is entitled in any one year under participation rights, the balance for the common stock is equivalent to \$3.43 per share. Assets amounted to \$8,032,207, of which \$1,823,732 were current assets.

**F. A. Poor**, president, in his statement to stockholders, said in part:

Poor and Company, through the issuance of a portion of its authorized stock, acquired as of April 1, 1928, all the stocks of the P. & M. Company, the P. & M. Company, Ltd., the Canton Forge & Axle Co., the Vermilion Malleable Iron Co. and the Maintenance Equipment Co., and minority interests in foreign companies. Through the issuance of the balance of its authorized stock, Poor & Company acquired as of the same date, numerous and important additional

patents and patent rights. The divergent interests were thus united and extensive royalty payments saved.

Regular dividends at the rate of \$1.50 per share, payable 37½ cents quarterly, have been paid on the preference and common stocks. In addition a special dividend of 50 cents per share on both classes of stock was paid March 1, 1929. The balance sheet shows a very gratifying position. Cash items alone equal nearly 3 times all liabilities other than stock. The ratio of current assets to current liabilities is better than 5½ to 1. While final figures are not available for operations since December 31, we can report that business has been quite satisfactory.

## Obituary

**Charles E. Carpenter**, president of E. F. Houghton & Company, Philadelphia, Pa., died at Miami Beach, Fla., on April 6.

**John T. Logan**, president of the National Lumber & Creosoting Company, Texarkana, Ark., died in St. Louis, Mo., on April 12.

**Charles Philip Coleman**, formerly president of the Worthington Pump & Machinery Corporation, died on April 13 at Washington, at the age of 64. Mr. Coleman served from 1887 to 1898 with the Lehigh Valley in various positions and then went with the Bethlehem Steel Company for about one year. He subsequently returned to the Lehigh Valley as purchasing agent, resigning in February, 1903. He was president of the Worthington Pump & Machinery Corporation from 1918 to 1926. At the time of his death, Mr. Coleman was president of the Mt. Hope Bridge Company and of the Sandusky Bay Bridge Company.

## Trade Publication

**GRAVER HOT-PROCESS WATER SOFTENER**—A 12-page bulletin has been issued by the Graver Corporation, East Chicago, Ind., describing its hot-process water softener in which heat is employed to accelerate the action of the chemicals in precipitating the scale-forming solids from the water. Illustrations are given of actual installations, together with views of the various parts of the device. The bulletin also contains a colored diagrammatic drawing of a typical installation showing the details of operation.

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On the Boston & Albany

## Construction

**ATCHISON, TOPEKA & SANTA FE.**—An agreement between this company and Oklahoma City, Okla., for the elevation of the railroads' tracks in the city provides for the construction of street subways at Fifth street, which will be 56 ft. wide, including two 20-ft. roadways and two 8-ft. sidewalks; Fourth street and Grand avenue, each 80 ft. wide with two 30-ft. roadways and two 10-ft. sidewalks; Third and Second streets, each 40 ft. wide with one 30-ft. roadway and two 5-ft. sidewalks; Main street, 70 ft. wide with two 27-ft. roadways and two 8-ft. sidewalks and Reno avenue, 60 ft. wide with two 20-ft. roadways and two 10-ft. sidewalks.

**BALTIMORE & OHIO.**—The director of highways of Ohio plans the elimination of a grade crossing on this railroad east of Glendale, Ohio, on the Glendale-Milford road, by the construction of a highway subway at an estimated cost of \$160,000.

**BLOEDEL-DONOVAN LUMBER MILLS.**—Plans have been announced for the construction of an extension of the logging railroad of this company to Spruce, Wash., on the Hoh river, about 29 miles.

**BOSTON & MAINE.**—This company plans the construction of an industrial siding track to be built from its lines in Glenville, near Schenectady, N. Y., and extending to the property of the Scotia Sand & Gravel Company, Inc.

**BRITISH COLUMBIA ELECTRIC.**—A contract has been let to Ellis-Cotton Ltd., Vancouver, B. C., for the relocation, at a cost of \$134,700, of 3.5 miles of line between Ruskin, B. C., and Austin in connection with the construction of a dam and the creation of an artificial lake on Stave river. The contract includes the excavation of 170,000 cu. yd. of material, most of which is rock, and the construction of 2,000 ft. of trestles. A second contract for the reconstruction of nearly a mile of the line has been let to Stuart Cameron & Co., Ltd., and Armstrong, Morrison & Co., Ltd. Including electrification, the completed project will entail an expenditure of \$240,000.

**CANADIAN PACIFIC.**—A contract has been awarded to the Hamilton Bridge Company, Hamilton, Ont., for the construction of four bridges on the lines of this company in British Columbia at a cost of about \$800,000. Contracts have also been let for the grading of 99 miles of branch lines in Alberta and Saskatchewan, as follows: From Coronation, Alta., to Youngstown, 41 miles, and from Acme, Alta., northwest 25 miles, to Fred Manix, Calgary, Alta.; from Bromhead, Sask., west to Lake Alma, 18 miles, to Riley & Reed, Edmonton, Alta.; from Willingdon, Alta., northwest 15 miles, to Roosa & Wickstrand, Vermilion, Alta.

**CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.**—This company has applied to the Interstate Commerce Commission for authority to build 2.6 miles of line at Sioux City, Ia., for the purpose of lessening train operations over its main line in a congested part of the city.

**CHICAGO, ROCK ISLAND & GULF.**—This company has applied to the Interstate Commerce Commission for authority to construct a line from Shamrock to Quanah, Tex., and from Quanah to a point of connection with the St. Louis, San Francisco & Texas in Wilberger county, 108 miles. The company also asks authority to acquire by means of joint trackage agreements 37 miles of the St. Louis, San Francisco & Texas and 75 miles of the Gulf, Texas & Western, which, together with the line to be built and the existing line from Jacksboro to Ft. Worth, will afford a continuous line from Shamrock to Ft. Worth. Application also has been made to the Interstate Commerce Commission for a certificate authorizing the construction of a new line from Dalhart to Pringle, Tex., 60 miles.

**CHICAGO, ROCK ISLAND & PACIFIC.**—The City of Oklahoma City (Okla.) plans, in conjunction with this company and the Oklahoma Railway, the construction of an 800-ft. viaduct and bridge to carry Exchange avenue over the tracks of the two railroads and the North Canadian river. The cost of the structure will be about \$350,000.

**DELAWARE & HUDSON.**—This road plans the elimination of a grade crossing north of Unadilla, N. Y., at an estimated cost of \$125,000. It is expected that the work will be under construction at an early date.

**DELAWARE, LACKAWANNA & WESTERN.**—This company is preparing plans and will soon receive bids for the elimination of a grade crossing on its lines in Elmira, N. Y., at an estimated cost of \$250,000.

**DULUTH, SOUTH SHORE & ATLANTIC.**—This company plans the construction of concrete fenders on the ferry slip dock at St. Ignace, Mich., at a cost of \$75,000 to replace existing timber fenders.

**ERIE.**—This company plans the elimination of a state highway grade crossing on its lines in Hillburn, N. Y., at an estimated cost of \$241,700. The work which is to include the construction of an overhead bridge will be started within a few weeks.

**ERIE.**—A contract for the construction of a 1,000-ton capacity four-track reinforced concrete automatic electric coaling station with sand handling equipment and cinder handling plants at Meadville, Pa., has been awarded to the Roberts & Schaefer Company, Chicago.

**ILLINOIS CENTRAL.**—A contract for the construction of a concrete pier for the bridge over Horse Creek at Bluford, Ill., has been let to the Bates & Rogers Construction Company, Chicago, at a cost of about \$35,000.

**LEHIGH VALLEY.**—A contract has been let to the Roberts & Schaefer Company, Chicago, for the construction of a 1,700-ton capacity automatic electric coaling and sanding plant at Coxtown, Pa.

**LEHIGH VALLEY TERMINAL WAREHOUSE, INC.**—This company plans the construction of a new \$10,000,000 terminal warehouse in the midtown district of New York on the Hudson river between Twenty-sixth and Twenty-seventh streets and extending from Eleventh to Thirteenth avenues, on the site of the existing Lehigh Valley freight yard and adjacent to its pier and float-bridge. The building will be 12 stories high and will provide a total floor area of approximately 500,000 square feet. Freight cars will enter the first floor at the Thirteenth avenue end and accommodation will be provided for 54 cars. The tailboard length of the platforms will be sufficient to serve 72 trucks. A driveway, connecting with the team-track yards of the Lehigh Valley and the freight platforms, will extend through the entire floor to permit trucking traffic in both directions from Eleventh to Thirteenth avenues. The team track yard will be entirely under cover. The Lehigh Valley already has leased the entire ground floor of the proposed terminal.

**MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.**—A contract has been let to the Peppard & Fulton Co., Minneapolis, Minn., for the reconstruction of a bridge over the St. Croix river near Danbury, Wis., on the Minnesota-Wisconsin state line, at a cost of \$65,000. The bridge, which will be 492-ft. long, will include the present three 100-ft. deck plate girder spans and two new 40-ft. deck plate girder spans supported on two 40-ft. steel towers.

**MISSOURI PACIFIC.**—A contract has been awarded to the Gauger-Korsmo Construction Company, Memphis, Tenn., for the construction of an engine shop and machine shop at Poplar Bluff, Mo., at a cost of \$153,000. The same contractor has been given a contract for the construction of a shed for a crane and an extension to the crane runways at North Little Rock, Ark., which will involve an expenditure of about \$27,000. Winston Brothers, St. Louis, Mo., have been awarded a contract for the grading for the construction of a passing track at Eton, Mo., which it is estimated will cost \$110,000. A contract for the construction of a lap siding at Bradford, Ark., which will cost about \$53,000, has been let to A. Guthrie & Co., St. Paul, Minn. Contracts for the re-construction of a bridge at Boughton, Ark., at a cost of \$75,000 and a bridge at St. Louis, Mo., at a cost of \$60,000, have been let to the List & Weatherly Construction Company, Kansas City, Mo. A contract

for the installation of a drainage system in connection with the construction of team tracks, driveways, icing and inspection facilities for handling perishable freight at Main and Rutger streets, St. Louis, has been awarded to the Industrial Construction Company, St. Louis. The cost of the this project is estimated at \$90,000. The contract for the construction of pole lines for automatic block signals at various locations at a total cost of \$290,000 has been let to R. H. Bouliguy, Inc., Charlotte, N. C.

**NEW YORK CENTRAL.**—This company has applied to the Interstate Commerce Commission for authority to build a cut-off line on its Putnam division between Briarcliff Manor station and East View station, N. Y., which will reduce the distance from 6.03 to 4.6 miles, and to abandon the old line.

**NEW YORK CENTRAL.**—This road has petitioned the New York Public Service Commission for permission to abandon a portion of its tracks on the Putnam division between East View and Buck-out's Crossing, N. Y., and also three stations on this route, for the purpose of straightening its line and eliminating five grade crossings. It also proposes to build a new station at Hawthorne, N. Y., to serve the territory of the three stations to be discontinued.

**NEVADA-CALIFORNIA-OREGON.**—This company, a subsidiary of the Southern Pacific, plans the expenditure of about \$325,000 for the construction of shops and terminal facilities at Alturas, Cal.

**NICOLAS, FAYETTE & GREENBRIER.**—**NEW YORK CENTRAL.**—These companies have let subcontracts for a 28-mile extension between Swiss and Nallen, W. Va., as follows: To A. Keathley, Charleston, W. Va., for grading, concrete structures and ballast; to Piper & East, Charleston, and to Brown, Murphy and Wright, Princeton, W. Va., for grading

and concrete structures; to Poston, Brewer & Brewer, Chillicothe, O., for grading and concrete structures; A. Guthrie & Co., Swiss, W. Va., has the general contract.

**ONTARIO & WESTERN.**—This company plans the elimination of a grade crossing on the state highway crossing its lines north of Morrisville, N. Y., at an estimated cost of about \$130,000. The project will involve the construction of a railway bridge 90 ft. long over the highway, to be built of solid floor plate girder construction. A 40-ft. roadway will be provided between the bridge abutments and approach grades will be constructed of re-inforced concrete for 30 feet on either side of the bridge.

**PENNSYLVANIA.**—The director of highways of Ohio plans the construction of a highway subway under the tracks of this company at Reading, Ohio, on highway route No. 19 at a cost of about \$200,000.

**PENNSYLVANIA.**—This company has awarded a contract to Walter Rae, Pittsburgh, Pa., for the construction of a new overhead bridge on its lines in Harrisburg, Pa., over the West Shore road at the Market street bridge approach, to eliminate dangerous pillars now supporting the old bridge. Work will begin on the project immediately and will be carried out without delays to either motor or railway traffic. The contract calls for the removal of the dangerous pillar supports by June 20.

**PORT ANGELES WESTERN.**—This company plans the construction of an extension of its line from Lake Pleasant, Wash., to Forks, about nine miles.

**VIRGINIAN.**—This company has applied to the Interstate Commerce Commission for authority to construct an extension from its present terminus at Deepwater, Va., to a connection with the tracks of the Kanawha & Michigan via a bridge across the Kanawha river, about one mile.

\* \* \* \*



Wide World

Tracks on the Southern Submerged by Flood Waters of the Ocmulgee River in Georgia

## Financial

**ALTON & SOUTHERN.—Trackage Rights.**—This company has been authorized by the Interstate Commerce Commission to operate under trackage rights over 4.4 miles of line in the city of St. Louis, Mo. The line over which the rights were granted includes the new municipal bridge and other city facilities.

**BOSTON & MAINE.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to issue \$2,400,000 of 5 per cent bonds, to reimburse the treasury. They are to be sold to stockholders of the company.

**CANADIAN PACIFIC.—Stock.**—This road is offering to its stockholders rights to subscribe to 300,000 shares of a new issue of common stock with par value of \$30,000,000 or \$100 a share. The new issue will be apportioned one share for each ten shares now held. The price per share is fixed at \$170, payable in four installments, and thus the sale will bring the company \$51,000,000 in new capital.

**CHICAGO & NORTH WESTERN.**—*Construction Authorized.*—This road has been authorized by the Interstate Commerce Commission to construct an extension from Winner to Wood, S. D., a distance of 33.7 miles.

**DETROIT & MACKINAC.**—*Abandonment.*—This road has been authorized by the Interstate Commerce Commission to abandon 11.6 miles of its Rockport branch in Alpena County, Mich.

**ELGIN, JOLIET & EASTERN.—Annual Report.**—The annual report of this company for 1928 shows net income after interest and other charges of \$1,196,875, as compared with net income of \$1,545,241 in 1927. Selected items from the income statement follow:

ELGIN, JOLIET & EASTERN			
	1928	1927	Increase or Decrease
Average mileage operated .....	459.87	460.78	— .91
RAILWAY OPERATING REVENUES .....	24,602,240	24,281,541	320,699
Maintenance of way .....	2,520,640	2,493,011	27,629
Maintenance of equipment .....	4,947,031	5,138,647	—191,616
Transportation .....	8,458,959	8,579,921	—120,962
TOTAL OPERATING EXPENSES .....	16,820,060	17,000,308	—180,248
Operating ratio .....	68.37	70.01	— 1.64
Railway tax accruals .....	2,164,185	1,379,827	784,358
Railway operating income .....	5,616,329	5,900,859	—284,530
Equipment and joint facility rents, Dr. ....	1,885,370	1,722,079	163,291
NET RAILWAY OPERATING INCOME .....	3,730,959	4,178,780	—447,822
Non-operating income .....	380,788	424,292	— 43,504
GROSS INCOME .....	4,111,746	4,603,072	—491,326
Rent for leased roads .....	2,239,596	2,356,060	—116,464
Interest on fund'd debt .....	500,000	500,000	.....

(Continued on page 945)

# Annual Reports

## Thirty-second Annual Report of the Northern Pacific Railway Company

Office of the  
NORTHERN PACIFIC RAILWAY COMPANY,  
St. Paul, Minnesota, March 26, 1929.

To the Stockholders of the  
Northern Pacific Railway Company:

The following, being the thirty-second annual report, shows the result of the operation of your property for the year ending December 31, 1928.

### Income Account

	1928	1927	Increase— Decrease—
Average mileage operated	6,729.84	6,669.95	I 59.89
Operating Income.			
Operating revenues	\$101,272,723.78	\$95,574,816.28	I \$5,697,907.50
Operating expenses	70,801,966.02	67,854,738.56	I 2,947,227.46
Net operating revenue	\$30,470,757.76	\$27,720,077.72	I \$2,750,680.04
Railway tax accruals	9,688,173.23	8,907,123.66	I 781,049.57
Uncollectible railway revenues	20,681.25	20,009.94	I 671.31
Railway operating income	\$20,761,903.28	\$18,792,944.12	I \$1,968,959.16
Equipment rents—net	1,985,490.66	1,728,209.39	I 257,281.27
Joint facility rent—net	2,341,177.85	2,071,683.22	I 269,494.63
Net railway operating income	\$25,088,571.79	\$22,592,836.73	I \$2,495,735.06
Nonoperating Income.			
Income from lease of road	\$333,342.35	\$330,513.00	I \$2,829.35
Miscellaneous rent income	502,743.19	513,618.98	D 10,875.79
Miscellaneous nonoperating physical property	244,131.18	263,130.70	D 18,999.52
Dividend income	9,333,797.05	9,336,122.00	D 2,324.95
Income from funded securities	599,426.52	730,657.77	D 131,231.25
Income from unfunded securities and accounts	292,687.66	255,799.00	I 36,888.66
Miscellaneous income	14,390.50	5,222.51	I 9,167.99
Total nonoperating income	\$11,320,518.45	\$11,435,063.96	D \$114,545.51
Gross income	\$36,409,090.24	\$34,027,900.69	I \$2,381,189.55
Deductions from Gross Income.			
Rent for leased roads	\$51,470.65	\$51,470.65	
Miscellaneous rents	74,849.29	76,770.71	D 1,921.42
Miscellaneous tax accruals	132,904.17	219,658.59	D 86,754.42
Interest on funded debt	14,646,254.70	14,714,082.32	D 67,827.62
Interest on unfunded debt	131,682.09	150,501.34	D 18,819.25
Amortization of discount on funded debt	31,939.79	34,963.54	D 3,023.75
Miscellaneous income charges	206,779.36	242,029.76	D 35,250.40
Total deductions from gross income	\$15,275,880.05	\$15,489,476.91	D \$213,596.86
Net income	\$21,133,210.19	\$18,538,423.78	I \$2,594,786.41
Dividend requirements	\$12,400,000.00	\$12,400,000.00	
Balance for the year	\$8,733,210.19	\$6,138,423.78	I \$2,594,786.41

### Earnings

#### Freight Business

Freight revenue was \$81,724,976.48, an increase of \$6,262,021.52, or 8.30 per cent.

The number of tons of revenue freight carried was 24,089,250 an increase of 986,940, or 4.27 per cent.

7,052,061,971 tons of revenue freight were moved one mile, an increase of 480,587,173 tons one mile, or 7.31 per cent.

The average revenue per ton mile increased from 1.148 cents to 1.159 cents.

The revenue train load increased from 670.22 to 695.87 tons. The total train load, including company freight, increased from 777.53 to 807.43 tons.

The number of miles run by revenue freight trains, including proportion of mixed, was 10,134,180, an increase of 329,280, or 3.36 per cent.

### Passenger Business

Passenger revenue was \$10,732,830.25, a decrease of \$1,040,452.45, or 8.84 per cent.

Mail revenue was \$1,801,010.81, an increase of \$101,769.46, or 5.99 per cent.

Express revenue was \$1,923,732.32, an increase of \$132,059.23, or 7.37 per cent.

Sleeping car, parlor and chair car, excess baggage and miscellaneous passenger revenue was \$971,531.22, a decrease of \$112,938.15, or 10.41 per cent.

Total revenue from persons and property carried on passenger and special trains was \$15,429,104.60, a decrease of \$919,561.91, or 5.62 per cent.

The number of passengers carried was 2,203,569, a decrease of 477,152, or 17.80 per cent. The number of passengers carried one mile was 348,013,851, a decrease of 31,977,330, or 8.42 per cent.

The number of miles run by revenue passenger trains, including proportion of mixed, was 9,065,975, a decrease of 514,679 or 5.37 per cent.

The average revenue per passenger mile decreased from 3.098 to 3.084 cents.

### Transportation—Rail Line

The charges for transportation expenses were \$32,825,514.56, an increase of \$923,222.08, or 2.89 per cent, as against an increase in total operating revenue of 5.96 per cent.

### Maintenance of Equipment

The charges for maintenance of equipment were \$18,700,310.67, an increase of \$835,138.42, or 4.67 per cent. Of the total charges \$4,181,558.84 represents depreciation, accrued at the rate of 4 per cent.

### Locomotives

Total number of locomotives on active list, December 31, 1927	1,220
Additions:	
Locomotives purchased	None
	1,220
Deductions:	
Locomotives sold	11
Locomotives withdrawn from service, to be dismantled	77
	88
Total locomotives on active list, December 31, 1928	1,132
In addition to locomotives on active list there were:	
Withdrawn from service and on hand December 31, 1927	None
Withdrawn from service during the year	77
Less—Dismantled	53
Leaving on hand locomotives withdrawn from service which may be sold or dismantled	24

### EARNINGS AND EXPENSES PER MILE OPERATED

	1917	1924	1925	1926	1927	1928
Operating revenues per mile	\$13,526.37	\$14,265.46	\$14,620.55	\$14,568.38	\$14,329.17	\$15,048.31
Operating expenses per mile	8,171.39	10,558.94	10,453.59	10,215.11	10,173.20	10,520.60
Net operating revenue per mile	5,354.98	3,706.52	4,166.96	4,353.27	4,155.97	4,527.71
Taxes per mile	1,059.52	1,279.47	1,396.39	1,369.45	1,335.41	1,439.59
Net after taxes	4,295.46	2,427.05	2,770.57	2,983.82	2,820.56	3,088.12
	1917	1924	1925	1926	1927	1928
Operating expenses to operating revenues	60.41%	74.02%	71.50%	70.12%	71.00%	69.91%
Transportation expenses to operating revenues	32.34%	35.88%	34.27%	33.17%	33.38%	32.41%
Taxes to operating revenues	7.83%	8.97%	9.55%	9.40%	9.32%	9.57%

[ADVERTISEMENT]

## Hauling Capacity

	Number	Tractive power (Pounds)	Total weight on drivers (Pounds)	Total weight of locomotives (Pounds)
Assignment December 31, 1927	1,220	50,308,240	219,328,267	282,592,852
Added during year—purchased				
Added during year *		137,260	43,100	71,000
Total	1,220	50,445,500	219,371,367	282,663,852
Locomotives sold or withdrawn from service	88	2,478,820	11,204,850	14,192,450
Total December 31, 1928	1,132	47,966,680	208,166,517	268,471,402

\* Account engines having superheaters applied, changes in size of cylinders and steam pressure increased.

The following statement shows the character and condition of the locomotives of the Company on December 31, 1928.

Condition	December 31, 1928		December 31, 1927	
	Number	Per cent	Number	Per cent
Good	950	83.92	1,023	83.85
Fair	66	5.83	67	5.49
At shops or awaiting shop	95	8.39	109	8.94
Unserviceable, awaiting disposition	21	1.86	21	1.72
	1,132	100.00	1,220	100.00
Number of oil burning locomotives	21	1.86	21	1.72
Number of locomotives equipped with superheaters	812	71.73	806	66.07
Number of locomotives equipped with stokers	283	25.00	282	23.11
Number of locomotives equipped with boosters	42	3.71	38	3.11

The four cylinder simple Mallet locomotive for experimental purposes in the handling of freight on the Yellowstone Division, as referred to in 1927 report, has been delivered.

## Freight car situation on December 31st.

	1928	1927	Increase— Decrease—D
Northern Pacific cars on line	38,932	37,077	I 1,855
Foreign cars on line	8,322	7,587	I 735
Total cars on line	47,254	44,664	I 2,590
Northern Pacific cars on foreign lines	10,634	12,417	D 1,783
Number of cars unserviceable	3,183	3,398	D 215
Percentage of unserviceable to total cars on line	6.73	7.61	D .88
Number of cars requiring heavy repairs	1,741	1,656	I 85
Percentage of above to total cars on line	3.68	3.71	D .03
Number of cars requiring light repairs	1,442	1,742	D 300
Percentage of above to total cars on line	3.05	3.90	D .85

## Maintenance of Way and Structures

The charges for maintenance of way and structures were \$12,596,853.25, an increase of \$631,574.83, or 5.28 per cent.

The table on page 30 shows the distribution of this increase under the respective accounts.

The following statements give particulars of some of the work done.

## Permanent Way

	Year 1928	Year 1927
New branch lines laid with 90 pound rail, second hand	103.56	.06
Main line relaid with 130 pound rail	6.18	5.20
Main line relaid with 100 pound rail	105.59	72.97
Main line relaid with 90 pound rail, second hand	2.25	.....
Second track relaid with 130 pound rail	2.31	.....
Second track relaid with 100 pound rail	17.33	10.60
Second track relaid with 90 pound rail	.02	.....
Branch lines relaid with 100 pound rail	.....	.04
Branch lines relaid with 90 pound rail, second hand	55.06	46.70
Branch lines relaid with 85 pound rail, second hand	4.48	3.71
Sidings and spurs constructed	54.23	51.80
Track ballasted with washed gravel	177.92	188.28
Track ballasted with washed gravel	496.019	527.074
Track ballasted with bank-run gravel	172.85	63.84
Track ballasted with bank-run gravel (patch or repairs)	253.102	176,773
Embankments widened	52.291	129,863
Embankments widened	132.83	167.45
Cross, bridge and switch tie renewals, main line	291,019	365,261
Cross, bridge and switch tie renewals, branch lines	1,013,085	1,015,296
Timber bridges replaced by permanent structures and embankments	716,940	633,208
Equal to	50	51
Timber bridges renewed	1.33	2.25
Timber culverts renewed	32	28
Timber culverts replaced in permanent form	16	23
New stock fences constructed	127	103
New snow fences constructed	47.63	61.83
	1.80	.54

## Rail in Main, Second, Third and Fourth Tracks

Weight	Main line		Second, third and fourth track		Total miles	
	Miles	Miles	Miles	Miles	Dec. 31, 1928	Dec. 31, 1927
130 pound steel	58.75	.....	8.95	67.70	59.21	.....
100 pound steel	782.63	1.24	61.95	845.82	723.40	.....
90 pound steel	1,752.49	574.98	523.25	2,850.72	2,832.50	.....

85 pound steel	237.96	769.17	27.84	1,034.97	1,062.20
80 pound steel	1.26	.....	.44	1.70	1.70
72 pound steel	70.39	1,045.81	8.32	1,124.52	1,144.25
70 pound steel	.....	48.23	.....	48.23	48.23
66 and 67 pound steel	40.31	396.60	.99	437.90	446.29
60 pound steel	2.60	22.17	.....	24.77	24.77
56 pound steel	1.78	704.97	.16	706.91	713.27
Total	2,948.17	3,563.17	631.90	7,143.24	7,055.82

## Bridges

88 bridges were replaced, 32 of which, 6,005 linear feet in length, were replaced by timber, and 6 permanent and 50 timber structures were replaced in permanent form, as follows:

Replaced by embankment..... 36 bridges, 5,230 linear feet.

Replaced by steel truss, girder and reinforced concrete trestle..... 20 bridges, 2,779 linear feet.

Total..... 56 bridges, 8,009 linear feet.

In addition to changes referred to above, one permanent and 23 temporary bridges were abandoned, 10 permanent and 130 temporary bridges were added, 143 culverts were rebuilt, 16 in temporary and 127 in permanent form. Six I-beam bridges with a total of 220 linear feet were reinforced with additional I-beams to carry standard loading.

## Bridges as they existed December 31, 1928.

Description	Number	Linear feet	Miles
Steel, iron, stone and concrete permanent bridges	899	155,441	29.44
Timber and combination iron and timber structures	2,414	345,619	65.46
Total	3,313	501,060	94.90

Total length of timber structures replaced by steel bridges, embankments or other permanent form from July 1, 1885, when work was commenced, to December 31, 1928, 153.77 miles.

There are now under construction 480 linear feet of steel truss for single track, 200 linear feet of girder for double track, 544 linear feet of girder and I-beam for single track, 16 linear feet of reinforced concrete trestle for double track and 240 linear feet for single track, and a 70-foot single track lift span.

## Water Supply

Water treating plants have been installed at Beach, Belfield, Bismarck, Dickinson, Glenullen, Mandan, Medora, Richardton and Sims in North Dakota; at Benz, Conlin, Custer, Heckman, Huntley, Joppa, Miles City, Pompeys Pillar, Sanders and Wibaux in Montana.

Water treating plants are under construction at Billings, Forsyth, Glendive and Laurel, Montana.

Improvements were made in water stations at Duluth in Minnesota; at Mandan in North Dakota; at Austin, Greycliff and Sims in Montana; at Cheney, Ellensburg, Kirkland and Roy in Washington.

## Fuel Stations

New coal docks have been completed as follows: LaMoure, North Dakota, wooden and steel construction; Glendive, Montana, steel construction; Pullman, Washington, concrete construction.

A coal storage pocket and chute has been installed under the ore dock at Superior, Wisconsin, and improvements have been made in the coal dock at Sauk Centre, Minnesota.

## Block Signals and Interlockers

Automatic block signals have been extended at Jamestown, North Dakota, through from west end of yard to the James River.

The lighting of automatic block signals has been changed from oil lamps to approach lighting electric lamps between Superior, Wisconsin, and Carlton, Minnesota; Duluth and White Bear, Minnesota; Pinehurst, Montana, and Montana-Idaho State line; Clarks Fork, Idaho, and Idaho-Washington State Line; and Ellensburg and Easton in Washington.

## Miscellaneous

The Redwater Branch from Glendive to Brockway, Montana, 62.02 miles, was completed and turned over for operation September 1, 1928.

Changes have been made in channel of Silver Bow Creek, near Ross, Montana, resulting in elimination of four bridges.

A two story brick building 41' x 121' was constructed at Fargo, North Dakota, for the purpose of housing the division headquarters removed from Dilworth, Minnesota. Building is now being occupied.

## General

## Financial Results of Operation.

The Net Railway Operating Income of the Company in 1928 was \$25,088,571.79, an increase of \$2,495,735.06, or 11.05% over 1927. The Net Income of the Company in 1928, after paying all charges, was \$21,133,210.19, an increase of \$2,594,786.41, or 14.00% over 1927.

**Return on Property.**

Year ending December 31,	Railway Property Investment including Material and Supplies and Working Cash at end of Year.	Net Railway Operating Income.	Return on Investment Per Cent.
1916	\$519,390,340	\$33,446,012	6.439
1917	524,278,065	30,491,140	5.816
1918	531,518,194	24,217,342	4.556
1919	532,312,282	14,368,479	2.699
1920	547,614,271	7,949,458	1.452
1921	559,236,547	10,843,826	1.939
1922	557,966,448	19,450,515	3.486
1923	581,455,528	17,100,557	2.941
1924	586,395,122	19,861,077	3.387
1925	596,316,581	22,227,319	3.727
1926	608,490,106	24,213,700	3.979
1927	617,172,925	22,592,837	3.661
1928	624,378,240	25,088,572	4.018

Hearings in the general class rates investigation being conducted by the Interstate Commerce Commission, mention of which was made in the 1926 and 1927 reports, were concluded during the year. Briefs have been filed but no conclusions have been announced by the Commission. This proceeding has afforded the carriers an opportunity to seek partial relief from seriously inadequate earnings in Western Trunk Line territory through proposals for increased class rates throughout the Middle West. The rate increases proposed affect the entire class rate adjustment in the territory served by the Northern Pacific east of Mandan, North Dakota.

The general investigation of the rate structure of the country by the Interstate Commerce Commission under the so-called Hoch-Smith Resolution is still going on. During the year hearings were completed in seven of the eleven branches of this investigation, including the class rates investigation above mentioned, the grain rates investigation, and the live stock rates investigation, which are of primary importance to the Northern Pacific.

**Valuation Work.**

It was stated in the annual report for 1927 that the officers of your Company, being of the opinion that the tentative valuation as of June 30, 1917, which the Interstate Commerce Commission had placed upon the Northern Pacific property was too low, had filed a protest and supported that protest by oral testimony. The Commission has not as yet rendered its decision on this protest.

The Valuation Act requires the Commission from time to time to revise and correct its valuation of railroad properties. In accordance with this requirement, the Commission has decided to establish a valuation as of December 31, 1927, for all railroad properties, and employees of your Company are now engaged in furnishing to the Bureau of Valuation the information which it has called for to enable it to establish a valuation of Northern Pacific properties as of the date named.

At the end of 1928, six employees were engaged in valuation work and the amount expended by the Company to that date in connection with the work was \$2,381,538.18.

**Land Department.**

The operations of the Land Department for the year, which are summarized in statements appearing on pages 47 and 48 show a marked improvement over the preceding year.

During the year 233,891.28 acres were sold, as compared with 134,097.62 acres sold in 1927, an increase of 74.42%. The total of land, town lot, timber, and miscellaneous sales, in 1928 amounted to \$3,226,477.35, as compared with \$1,618,651.14 in 1927, an increase of 99.33%. Contracts covering 51,341.70 acres, representing \$428,647.27, were cancelled, as compared with cancellations in 1927 of 138,426.87 acres, representing \$698,990.44, a decrease of 62.91% in acreage and 38.68% in deferred payments. The net cash receipts for the year were \$962,490.93, as compared with \$361,958.26 in 1927, an increase of 165.91%. The outstanding deferred payments on land contracts on December 31, 1928, amounted to \$4,616,762.23, as compared with \$3,761,602.12 on December 31, 1927, an increase of 22.73%. These comparisons reflect the improved conditions generally prevailing in your Company's territory.

Interest has continued in Redwater Valley land in eastern Montana where your Company's branch line from Glendive to Circle and Brockway was completed on September first. During the period from July 1, 1927, to December 31, 1928, 75,928.17 acres of railroad lands were sold for \$978,105.45. In addition, 22,011.42 acres, consideration \$275,083.06, were covered by short time options at the end of the year. Seventy-five new families have located in the territory, and the outlook for additional sales and settlement for 1929 is exceptionally good.

There has been an important development during the year in the extension and use of natural gas from the Glendive-Baker Anticline in eastern Montana. Pipe lines now serve Glendive, Terry, and Miles City, Montana, and the entire Black

Hills district of South Dakota. Further extensions are being considered.

A bill providing for submission to the courts of the controversy concerning the erroneous inclusion of Northern Pacific indemnity lands in the National Forest Reserves was introduced at the recent session of Congress. It passed the House of Representatives, but was not voted on in the Senate. The necessary legislation will doubtless be adopted at the next session.

**Taxes.**

The following statement shows taxes accrued each year during the past four years:

	1925	1926	1927	1928
State taxes	\$7,868,689.54	\$7,627,522.69	\$7,657,980.10	\$8,199,054.42
Federal taxes	1,433,269.69	1,484,402.25	1,207,638.23	1,449,562.01
Canadian and miscellaneous taxes	44,936.61	39,222.05	41,505.33	39,556.80
Totals	\$9,346,895.84	\$9,151,146.99	\$8,907,123.66	\$9,688,173.23

**Comparative Statement of Payrolls.**

A comparison of payrolls and number of employees for a period of years ending December 31, follows:

	Pay Rolls	No. of Employees
1916	\$28,204,669	28,899
1917	35,877,879	31,887
1918	49,632,127	32,228
1919	52,605,396	33,700
1920	66,503,794	35,553
1921	50,643,526	28,911
1922	49,041,401	27,899
1923	51,921,572	31,344
1924	45,950,886	27,133
1925	46,188,348	26,831
1926	44,938,046	26,111
1927	44,952,702	25,728
1928	46,261,766	25,841

The increase in the payrolls for 1928 as compared with 1927 is accounted for by increases in rates of pay as the result of arbitration awards in 1928; by wage increases awarded in 1927, the full effect of which was not felt until 1928, and by an increase in the number of hours worked by employees because of a heavier volume of business handled.

**Security Owners.**

There are now 36,335 owners of stock and about 30,000 owners of bonds of the Company.

As showing the number of small stockholders, the following figures are given:

18,690	hold from 1 to 19 shares;
12,368	hold from 20 to 99 shares;
31,058	or 85.48% hold less than 100 shares each;
5,277	hold 100 or more shares.

Total 36,335

14,927 of the stockholders are women;  
2,979 are savings banks, insurance companies, trustees, guardians, colleges, and charitable institutions.

**Improvement in Equipment.**

On December 31, 1928, the Company had 49,566 freight cars with a total capacity of 2,008,025 tons, and an average capacity of 40.51 tons. The following tabulation shows a comparison of freight car condition:

	March 1, 1920	Dec. 31, 1928
Cars new or rebuilt since March 1, 1920		36,034
Cars with steel center sills	18,860	23,114
Cars with steel underframes	3,773	13,911
Cars—all steel construction	3,795	4,196
Cars with metal roofs	19,094	30,825
Cars with steel ends		5,982

All classes of equipment and locomotives have been adequately maintained and are in good condition. Eight hundred and twelve locomotives are equipped with superheaters, and two hundred and eighty-three are equipped with mechanical stokers. The total tractive power of locomotives on December 31, 1928, was 47,966,680 pounds, an average of 42,373 pounds.

**Lines Abandoned.**

The relocation of the Bitter Root Branch between Florence and Hamilton, Montana, from the west side to the east side of the Bitter Root River was completed November 14, 1928.

The abandonment and removal of the old White Pine Hill Line between Pinehurst and Trout Creek, Montana, was completed on April 25, 1928.

**Financial Condition.**

During the past year outstanding securities amounting to \$1,472,500 have been retired, reducing the funded debt from \$318,232,000 to \$316,759,500. The net expenditures for additions and betterments amounted to \$5,852,268. Since December 31, 1915, \$112,758,130 have been expended on additions and betterments to the property. In the same period, not considering the increase in debt due to the refunding of the Northern Pacific-Great Northern (C. B. & Q. Collateral) Joint 4's in 1921, the total debt outstanding in the hands of the public decreased \$7,473,400. Excepting certain Equipment Trust Certifi-

cates and Branch Line Bonds, totaling \$8,439,000, which mature from time to time between now and the year 1968, none of the Company's funded debt will mature before 1996, and the larger part of it will not mature until 2047.

#### Pension Department.

On December 31, 1928, there were on the retired list 720 employees, whose average monthly allowance was \$51.96. During the year 164 employees were added to the list, and 61 died. The total amount disbursed during the year was \$420,649.21.

#### Unification of Northern Pacific Railway Company and Great Northern Railway Company.

The final hearing for taking testimony was held at Washington, D. C., on March 19, 20, and 21, 1928, before the Director of the Bureau of Finance and a member of the Commission. Subsequently briefs were filed by the applicants and by interveners. On October 3, 4, and 5 the case was presented to the full Commission in oral argument and at the conclusion of the argument taken under consideration by the Commission.

#### Express Business.

During and since the period of Federal Control of railroads, the express business of the country has been conducted by the

American Railway Express Company under a contract which, having been extended from time to time, expired February 28, 1929. As a result of studies that have been made, the railroads, including your Company, have reached the conclusion that the express business can be handled more efficiently through their own express agency. Accordingly, the Railway Express Agency, Incorporated, has been formed to conduct the operations of the express business on and after March 1, 1929, by acquiring for that purpose the operating equipment and properties of the American Railway Express Company.

The stock of the Railway Express Agency, Incorporated, is owned by the participating railroads on the basis of the ratio of express business handled on each railroad to the total express business handled by all of the participating railroads.

#### Subsidiary Companies.

The operating results of the Spokane, Portland & Seattle Railway Company, together with its subsidiaries, the Oregon Trunk, Oregon Electric, and United Railway will be found on page 49, and those of the Minnesota and International Railway Company on page 50.

By order of the Board of Directors,  
CHARLES DONNELLY,  
President.

### Northern Pacific Railway Company General Balance Sheet, December 31, 1928

ASSETS				LIABILITIES			
	1928	1927	+ Increase — Decrease		1928	1927	+ Increase — Decrease
<b>INVESTMENTS.</b>				<b>STOCK.</b>			
<b>ROAD AND EQUIPMENT.</b>				<b>GOVERNMENTAL GRANTS.</b>			
Road .....	\$473,574,001.00	\$468,802,408.71	+ \$4,771,592.29	Grants in aid of construction .....	485,236.10	484,935.10	+ \$301.00
Equipment .....	119,354,055.39	119,420,444.64	— 66,389.25	<b>LONG TERM DEBT.</b>			
General .....	3,716,189.38	3,626,445.72	+ 89,743.66	Funded debt .....	333,935,000.00	335,402,500.00	— 1,467,500.00
	\$596,644,245.77	\$591,849,299.07	+ \$4,794,946.70	Less—held by or for the Company .....	17,175,500.00	17,170,500.00	+ 5,000.00
<b>DEPOSITS IN LIEU OF MORTGAGED PROPERTY (Net moneys in hands of Trustees from sale of land grant land, etc.).</b>					\$316,759,500.00	\$318,232,000.00	— \$1,472,500.00
	340,524.89	296,164.02	+ 44,360.87	<b>Total Capital Liabilities .....</b>	\$565,244,736.10	\$566,716,935.10	— \$1,472,199.00
<b>MISCELLANEOUS PHYSICAL PROPERTY .....</b>				<b>CURRENT LIABILITIES.</b>			
	11,271,177.76	10,269,345.21	+ 1,001,832.55	Traffic and car service balances payable .....	\$885,327.62	\$806,707.22	+ \$78,620.40
<b>INVESTMENTS IN AFFILIATED COMPANIES</b>				Audited vouchers and wages payable .....	5,547,063.83	6,352,247.46	— 805,183.63
Stocks .....	144,085,285.01	144,085,285.01	—	Miscellaneous accounts payable .....	701,312.77	1,195,448.91	— 494,136.14
Bonds .....	30,198,047.75	30,201,497.75	— 3,450.00	Interest matured unpaid .....	5,290,319.00	5,329,265.00	— 38,946.00
Notes .....	2,264,761.17	2,363,761.17	— 99,000.00	Unmatured dividends declared .....	3,100,000.00	3,100,000.00	—
Advances .....	3,665,322.51	3,402,887.71	+ 262,434.80	Unmatured interest accrued .....	375,966.66	390,598.95	— 14,632.29
	\$180,213,416.44	\$180,053,431.64	+ \$159,984.80	Unmatured rents accrued .....	7,456.57	7,456.57	—
<b>OTHER INVESTMENTS.</b>				Other current liabilities .....	110,122.12	165,865.18	— 55,743.06
Stocks .....	301.00	201.00	+ 100.00	<b>Total Current Liabilities .....</b>	\$16,017,568.57	\$17,347,589.29	— \$1,330,020.72
Bonds .....	2,430,587.17	710,405.29	+ 1,720,181.88	<b>DEFERRED LIABILITIES.</b>			
U. S. Treasury notes and certificates .....	1,970,962.50	1,372,650.00	+ 598,312.50	Other deferred liabilities .....	\$166,682.00	\$267,925.81	— \$101,243.81
Contracts for sale of land grant lands .....	4,616,762.23	3,761,602.12	+ 855,160.11	<b>Total Deferred Liabilities .....</b>	\$166,682.00	\$267,925.81	— \$101,243.81
	\$9,018,612.90	\$5,844,858.41	+ \$3,173,754.49	<b>UNADJUSTED CREDITS.</b>			
<b>Total Capital Assets.</b>	\$797,487,977.76	\$788,313,098.35	+ \$9,174,879.41	Tax liability .....	\$9,326,781.79	\$7,637,081.10	+ \$1,689,700.69
<b>CURRENT ASSETS.</b>				Accrued depreciation of equipment .....	49,472,390.28	46,526,326.33	+ 2,946,063.95
Cash .....	\$14,300,067.65	\$12,707,212.73	+ \$1,592,854.92	Other unadjusted credits .....	14,664,372.63	10,522,076.62	+ 4,142,296.01
Special deposits .....	5,287,381.00	5,326,327.00	— 38,946.00	<b>Total Unadjusted Credits .....</b>	\$73,463,544.70	\$64,685,484.05	+ \$8,778,060.65
Loans and bills receivable .....	9,954.34	29,990.13	— 20,035.79	<b>CORPORATE SURPLUS.</b>			
Traffic and car service balances receivable .....	1,725,017.80	1,778,401.89	— 53,384.09	Additions to property through income and surplus .....	\$774,413.46	\$638,320.64	+ \$136,092.82
Net balances receivable from agents and conductors .....	855,494.39	757,398.21	+ 98,096.18	Funded debt retired through income and surplus .....	17,321,395.79	17,010,163.29	+ 311,232.50
Miscellaneous accounts receivable .....	3,452,075.62	3,363,659.90	+ 88,415.72	Miscellaneous fund reserves .....	327,479.26	159,664.25	+ 167,815.01
Material and supplies .....	11,353,490.37	11,653,089.01	— 299,598.64	<b>Total Appropriated Surplus .....</b>	\$18,423,288.51	\$17,808,148.18	+ \$615,140.33
Interest, dividends and rents receivable .....	87,556.85	102,526.79	— 14,969.94	Profit and loss balance .....	180,366,097.08	175,242,479.60	+ 5,123,617.48
Other current assets .....	86,671.55	92,305.49	— 5,633.94	<b>Total Corporate Surplus .....</b>	\$198,789,385.59	\$193,050,627.78	+ \$5,738,757.81
<b>Total Current Assets.</b>	\$37,157,709.57	\$35,810,911.15	+ \$1,346,798.42	<b>Grand Total .....</b>	\$853,681,916.96	\$842,068,562.03	+ \$11,613,354.93
<b>DEFERRED ASSETS.</b>							
Working fund advances .....	44,344.23	45,120.91	— 776.68				
Other deferred assets .....	73,821.94	100,447.34	— 26,625.40				
<b>Total Deferred Assets</b>	\$118,166.17	\$145,568.25	— \$27,402.08				
<b>UNADJUSTED DEBITS.</b>							
Balance of Guaranty due from Government .....		\$2,760,606.14	— \$2,760,606.14				
Discount of funded debt .....	2,345,586.91	2,377,474.95	— 31,888.04				
Other unadjusted debits .....	16,572,476.55	12,660,903.19	+ 3,911,573.36				
<b>Total Unadjusted Debits</b>	\$18,918,063.46	\$17,798,984.28	+ \$1,119,079.18				
<b>Grand Total .....</b>	\$853,681,916.96	\$842,068,562.03	+ \$11,613,354.93				

[ADVERTISEMENT]

# Chicago and North Western Railway Company

## Report of the Board of Directors

TO THE STOCKHOLDERS OF THE CHICAGO AND NORTH WESTERN RAILWAY COMPANY:

The Board of Directors submits herewith its report of the operations and affairs of the Company for the year ending December 31, 1928.

Average mileage of road operated, 8,463.21.

OPERATING REVENUES:	
Freight .....	\$111,417,795.55
Passenger .....	23,579,049.77
Other Transportation .....	14,077,173.78
Incidental .....	3,015,736.35
	\$152,089,755.45

OPERATING EXPENSES:	
Maintenance of Way and Structures...	\$23,461,938.70
Maintenance of Equipment.....	28,382,395.24
Traffic .....	3,049,508.60
Transportation .....	56,763,999.12
Miscellaneous Operations .....	1,076,373.99
General .....	4,435,318.56
Transportation for Investment—Cr.....	Cr. 530,626.10
	116,638,908.11

Percentage of Expenses to Revenues.....76.69

Net Revenue from Railway Operations.....	\$ 35,450,847.34
DEDUCTIONS FROM REVENUE:	
Railway Tax Accruals (6.32 per cent of Revenues) .....	\$9,608,224.72
Uncollectible Railway Revenues.....	22,762.84
Equipment Rents—Net .....	2,360,748.21
Joint Facility Rents—Net.....	233,428.66
	12,225,164.43

Net Railway Operating Income.....	\$23,225,682.91
NONOPERATING INCOME:	
Rental Income .....	\$695,892.66
Dividend Income .....	1,054,734.00
Income from Funded Securities.....	55,049.38
Income from Unfunded Securities and Accounts, and Other Items.....	539,487.97
	2,345,164.10

Gross Income .....	\$25,570,846.92
DEDUCTIONS FROM GROSS INCOME:	
Rental Payments .....	\$28,223.92
Interest on Funded Debt .....	13,378,132.40
Other Deductions .....	105,900.20
	13,512,256.52

Net Income .....	\$12,058,590.40
DIVIDENDS:	
7% on Preferred Stock.....	\$1,567,650.00
4% on Common Stock.....	6,337,514.00
½% on Common Stock (Extra).....	792,191.00
	8,697,355.00

Balance Income for the Year.....\$3,361,235.40

## General Remarks

Further progress was made at Proviso Yard in carrying out the program for revision and enlargement of this terminal. Grading for the east-bound gravity classification yard, begun in 1927, was substantially completed. Work of laying the tracks is well under way, and a contract has been entered into for the installation of a system of electrically operated car retarders. It is expected that this new gravity classification yard will be completed and ready for operation about August 1, 1929. The work of constructing a departure yard and light repair yard, to be operated in conjunction with this classification yard, is being carried out simultaneously.

Automatic train control on the Galena Division, described in previous annual reports, was completed and placed in service on May 1, 1928; thus placing in operation a system of continuous train control on the entire main line between Chicago and Council Bluffs, Iowa, a distance of 485 miles.

The work of elevating the tracks at and in the vicinity of Mayfair, referred to in previous reports, was fully completed.

Further progress was made in the elevation of tracks on the Mayfair Cut-off and on the third and fourth tracks north of the Chicago River, at and in the vicinity of Sauganash.

At Wells Street Yard, Chicago, preparatory work such as the rearrangement of tracks, construction of platforms and driveways, to be used in the new L. C. L. freight house being erected at this location in connection with the construction of the Merchandise Mart building of Marshall Field & Company, is progressing coincident with the construction work on the Merchandise Mart.

At Appleton, Wisconsin, a new brick freight house, 40 by 225 feet, with necessary platforms and track facilities, was completed and placed in operation.

At Carrollville, Wisconsin, a new combination freight and passenger station, 22 by 88 feet, of brick and stucco construction, was completed and placed in operation. This building replaces a station building destroyed by fire.

At Madison, Wisconsin, a new central heating plant for

supplying heat to the freight house, passenger station and coach tracks, was completed and placed in operation.

A new brick suburban station was erected at a point one and one-half miles north of Des Plaines, Illinois, on the Wisconsin Division, to be known as "Cumberland."

The construction of a new cut-off, 3.79 miles in length, connecting the Lake Shore Division at Whitefish Bay with the Wisconsin Division at Wisconsin, was completed and placed in operation on December 31, 1928. This cut-off affords a more direct route for the movement of freight between the Lake Shore Division and Butler Yard and provides an advantageous route for passenger traffic to and from Milwaukee, and permits the abandonment of approximately 4 miles of main track on the Lake Shore Division formerly used through the towns of Shorewood and Whitefish Bay, which are rapidly developing as residential districts, thereby relieving the Company of a large future expenditure for grade separation through these villages and resulting in important economies in the operation of trains in this area.

Grade separation at heavily traveled highway crossings has been completed at the following points:

Shorewood (Milwaukee), Wisconsin.—At the intersection of Atwater Road and the Wisconsin Division tracks, by the construction of a subway.  
Madison, Wisconsin.—At the intersection of Pond Street and the main tracks, near the station of South Madison, by the construction of an overhead concrete and steel bridge.  
New Butler, Wisconsin.—At the intersection of Draegers Road and the Belton-New Butler cut-off, by the construction of an overhead bridge.  
Belton, Wisconsin.—At the intersection of Blue Mound Road and the Belton-New Butler cut-off, by the construction of an overhead bridge.  
Des Plaines, Illinois.—At the intersection of Northwest Highway and the Proviso Valley Line, by the construction of a subway.  
Marshalltown, Iowa.—At the intersection of Primary Road No. 30 and the main tracks, by the construction of an overhead bridge.  
Otis, Iowa.—At the intersection of Primary Road No. 40 and the main tracks, by the construction of an overhead bridge.  
Baraboo, Wisconsin.—At the intersection of Broadway Street, by the construction of a subway.  
Dixon, Illinois.—Construction of an overhead highway bridge.  
Balaton, Minnesota.—Construction of an overhead highway bridge.  
Mount Horeb, Wisconsin.—Construction of an overhead highway bridge at Primary Road No. 18.  
Green Valley, Illinois.—Construction of a subway at intersection of Federal Aid Road No. 6.

At Highmore, South Dakota, a new deep well and water softening plant was completed and placed in operation.

At Council Bluffs, Iowa, the grain elevator was enlarged by the construction of forty additional bins, having a capacity of one million bushels.

At Sioux City, Iowa, a mill building was purchased and remodeled and converted into a grain elevator, having 72,000 bushels storage capacity, with machinery for elevating, conditioning and drying grain.

At De Smet, South Dakota, a new gravel pit of eighty-six acres was purchased and trackage connections and yard tracks necessary for the operation thereof were constructed.

Chicago Passenger Terminal.—A new cab entrance and driveway were provided, greatly increasing the capacity and relieving the congestion due to the rapid growth in taxi-cab business.

A series of new team tracks and driveways was constructed in the territory between Waukegan, Illinois, and Milwaukee, Wisconsin, to serve the rapidly expanding necessities for team track delivery in this area, at the following points:

Chittenden .....	1,650 feet of track
Kenosha—Birch Road .....	950 feet of track
Kenosha—34th Avenue .....	377 feet of track
Kenosha—Farm Yard .....	2,350 feet of track
Ives .....	4,040 feet of track
Willow .....	1,275 feet of track
Racine—Gould Street .....	800 feet of track
Bain .....	1,250 feet of track

The Company acquired new freight equipment during the year, consisting of:

100 Steel underframe gondolas, 140,000 capacity.
500 Steel underframe flat cars, 100,000 capacity.
500 Steel hopper cars, 140,000 capacity.
2 Steel well cars.
25 Steel underframe caboose cars.

Also new passenger equipment consisting of:  
14 Gas-electric motor passenger cars.

In addition to the foregoing, the Company had constructed 500 hopper cars and 1,000 automobile cars, with new bodies on reconitioned trucks.

## Maintenance of Way and Structures

The total Operating Expenses of the Company for the year ending December 31, 1928, were \$116,638,908; of this amount \$23,461,939 was for charges pertaining to the Maintenance of Way and Structures. Included in these charges is a large part of the cost of 47,041 tons of new steel rail laid in 288 miles of track and 59,383 tons of usable rail laid in 419 miles of track;

also the cost of 2,502,661 new track ties, and 8,006,580 ft. B. M. new switch and bridge ties used in renewals. A total of 3,265,134 new tie plates were placed during the year.

The charges for Maintenance of Way and Structures also include a substantial portion of the cost of ballasting 89.3 miles of double track with stone ballast, 55.9 miles of double track with gravel ballast, 116.8 miles of single track with gravel ballast, 4 miles of double track with cinder ballast, and 2.9 miles of single track with cinder ballast; also the erection in place of wooden structures of 26 new steel bridges on masonry, and 22 on pile supports, aggregating 3,890 feet in length and containing 2,521 tons of bridge metal; and the replacement of other wooden structures with masonry arch and box culverts and cast-iron pipes, the openings being filled with earth. The wooden structures replaced by permanent work aggregate 8,508 feet in length.

### Capital Stock

During the year the Company issued \$1,100.00 of Common Stock in exchange for a like amount of Common Stock Scrip, which had previously been issued pursuant to resolutions adopted by the Board of Directors and Stockholders, providing for the issue of Common Stock in exchange for the Preferred and Common Stocks of the Chicago, St. Paul, Minneapolis and Omaha Ry. Co.

The only other change during the year in the Capital Stock was the purchase by the Company of \$10.00 of its Common Stock Scrip.

The authorized Capital Stock of the Company is Two Hundred Million Dollars (\$200,000,000.00) of which the following has been issued to December 31, 1928:

<b>HELD BY THE PUBLIC:</b>	
Common Stock and Scrip.....	\$158,444,915.25
Preferred Stock and Scrip.....	22,395,120.00
Total Stock and Scrip held by the Public.....	\$180,840,035.25
<b>HELD IN TREASURY:</b>	
Common Stock and Scrip.....	\$2,343,697.15
Preferred Stock and Scrip.....	3,834.56
Total Stock and Scrip held in Treasury.....	2,347,531.71
Total Capital Stock and Scrip, December 31, 1928....	\$183,187,566.96

### Funded Debt

At the close of the preceding year, the amount of Funded Debt held by the Public was..... \$277,977,200.00  
The above amount has been increased by Equipment Trust Certificates sold during the year ending December 31, 1928, as follows:

C. & N. W. Ry. Equipment Trust Certificates of 1927, 4½% (secured by Series "T" and "U" equipment of the Equipment Trust of 1927):	
Series "T".....	\$2,745,000.00
Series "U".....	2,145,000.00
	4,890,000.00
Forwarded .....	\$282,867,200.00

And the above amount has been decreased during the year ending December 31, 1928, by Bonds and Equipment Trust Certificates redeemed, as follows:

M. L. S. & W. Ry. Extension and Improvement Sinking Fund Mortgage, 5% .....	\$14,000.00
C. & N. W. Ry. Sinking Fund of 1879, 6% .....	29,000.00
C. & N. W. Ry. Sinking Fund of 1879, 5% .....	8,000.00
C. & N. W. Ry. Sinking Fund Debentures of 1933, 5% .....	202,000.00
C. & N. W. Ry. Equipment Gold Notes of 1920, 6% .....	664,900.00
C. & N. W. Ry. Equipment Trust Certificates of 1920, 6½%:	
Series "J".....	\$186,000.00
Series "K".....	267,000.00
	453,000.00
C. & N. W. Ry. Equipment Trust Certificates of 1922, 5%:	
Series "M".....	\$345,000.00
Series "N".....	317,000.00
	662,000.00
C. & N. W. Ry. Equipment Trust Certificates of 1923, 5%:	
Series "O".....	\$412,000.00
Series "P".....	104,000.00
	516,000.00
C. & N. W. Ry. Equipment Trust Certificates of 1925, 4½%:	
Series "R".....	\$130,000.00
Series "S".....	174,000.00
	304,000.00
C. & N. W. Ry. Equipment Trust Certificates of 1927, 4½%:	
Series "T".....	183,000.00
Total Funded Debt Redeemed.....	3,035,900.00

Leaving Funded Debt held by the Public, December 31, 1928..... \$279,831,300.00

### Lands

During the year ending December 31, 1928, 21,705.98 acres and 48 town lots of the Company's Land Grant lands were sold for the total consideration of \$288,490.50. The number of acres remaining in the several Grants December 31, 1928, amounted to 84,462.55 acres, of which 249.01 acres were under contract for sale, leaving unsold 84,213.54 acres.

Appended hereto may be found statements, accounts and statistics relating to the business of the fiscal year and the condition of the Company's affairs on December 31, 1928.

The Board gratefully acknowledges its appreciation of the loyal and efficient services rendered by officers and employees during the year.

By order of the Board of Directors.

FRED W. SARGENT,  
President.

CHICAGO, April 1, 1929.

### Comparative Statement of Income Account

	Year Ending Dec. 31, 1927	Year Ending Dec. 31, 1928	+ Increase — Decrease
Average mileage of road operated .....	8,465.15	8,463.21	— 1.94
Freight .....	\$108,330,428.43	\$111,417,795.55	+\$3,087,367.12
Passenger .....	25,183,382.18	23,579,049.77	— 1,604,332.41
Other Transportation....	13,532,420.04	14,077,173.78	+ 544,753.74
Incidental .....	3,086,729.04	3,015,736.35	— 70,992.69
Total Operating Revenues .....	\$150,132,959.69	\$152,089,755.45	+\$1,956,795.76
<b>OPERATING EXPENSES:</b>			
Maintenance of Way and Structures .....	\$22,230,790.83	\$23,461,938.70	+\$1,231,147.87
Maintenance of Equipment .....	29,389,959.05	28,382,395.24	— 1,007,563.81
Traffic .....	2,487,715.86	3,049,508.60	+ 561,792.74
Transportation .....	58,118,912.92	56,763,999.12	— 1,354,913.80
Miscellaneous Operations	1,088,549.53	1,076,373.99	— 12,175.54
General .....	4,238,657.21	4,435,318.56	+ 196,661.35
Transportation for Investment—Cr. ....	Cr. 560,318.30	Cr. 530,626.10	+ 29,692.20
Total Operating Expenses .....	\$116,994,267.10	\$116,638,908.11	— \$355,358.99
Net Revenue from Railway Operations ....	\$33,138,692.59	\$35,450,847.34	+\$2,312,154.75
<b>DEDUCTIONS FROM REVENUE:</b>			
Railway Tax Accruals..	\$9,783,807.24	\$9,608,224.72	— \$175,582.52
Uncollectible Railway Revenues .....	33,461.67	22,762.84	— 10,698.83
Equipment Rents—Net..	2,828,804.23	2,360,748.21	— 468,056.02
Joint Facility Rents—Net	234,925.93	233,428.66	— 1,497.27
Total Deductions.....	\$12,880,999.07	\$12,225,164.43	— \$655,834.64
Net Railway Operating Income .....	\$20,257,693.52	\$23,225,682.91	+\$2,967,989.39
<b>NONOPERATING INCOME:</b>			
Rental Income .....	\$829,059.79	\$695,892.66	— \$133,167.13
Dividend Income .....	1,476,124.00	1,054,734.00	— 421,390.00
Income from Funded Securities .....	32,724.41	55,049.38	+ 22,324.97
Income from Unfunded Securities and Accounts, and Other Items.....	501,917.88	539,487.97	+ 37,570.09
Total Nonoperating Income .....	\$2,839,826.08	\$2,345,164.01	— \$494,662.07
Gross Income .....	\$23,097,519.60	\$25,570,846.92	+\$2,473,327.32
<b>DEDUCTIONS FROM GROSS INCOME:</b>			
Rental Payments .....	\$35,211.83	\$28,223.92	— \$6,987.91
Interest on Funded Debt	12,995,820.21	13,378,132.40	+ 382,312.19
Other Deductions .....	140,424.75	105,900.20	— 34,524.55
Total Deductions ....	\$13,171,456.79	\$13,512,256.52	+ \$340,799.73
Net Income .....	\$9,926,062.81	\$12,058,590.40	+\$2,132,527.59
<b>DIVIDENDS:</b>			
On Preferred Stock (7%)	\$1,567,650.00	\$1,567,650.00	.....
On Common Stock (4%)	6,333,228.00	6,337,514.00	+ \$4,286.00
On Common Stock (½% Extra) .....	.....	792,191.00	+ 792,191.00
Total Dividends.....	\$7,900,878.00	\$8,697,355.00	+\$796,477.00
Balance Income for the Year, carried to Profit and Loss....	\$2,025,184.81	\$3,361,235.40	+\$1,336,050.59

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## Profit and Loss—December 31, 1928

Dr.	
CHARGES FOR THE YEAR ENDING DECEMBER 31, 1928:	
Depreciation accrued prior to July 1, 1907, on equipment retired or changed from one class to another.....	\$684,816.61
Debt discount incurred during the year extinguished through surplus .....	8,135.39
Credit Balance, December 31, 1928, carried to Balance Sheet .....	71,263,872.19
	\$71,956,824.19

Cr.	
Credit Balance, December 31, 1927.....	\$65,791,762.56
CREDITS FOR THE YEAR ENDING DECEMBER 31, 1928:	
Credit Balance of current year's Income, brought forward from Income Account .....	3,361,235.40
Net credit on property sold or abandoned and not replaced .....	2,460,051.03
Net profit from sale of Land Grant lands.....	271,328.59
Net Miscellaneous Credits .....	72,446.61
	\$71,956,824.19

Comparative General Balance Sheet  
(8,389.01 Miles)

December 31, 1927	ASSETS.	December 31, 1928	December 31, 1927	LIABILITIES.	December 31, 1928
	INVESTMENTS.			CAPITAL STOCK	
\$529,655,225.14	Investment in Road and Equipment.....	\$541,120,306.28	\$180,840,045.25	Held by Public .....	\$180,840,035.25
835,888.55	Miscellaneous Physical Property.....	814,612.72	2,347,521.71	Held in Treasury .....	2,347,531.71
2,175,835.79	Investment in Affiliated Companies.....	2,169,253.15		Total Capital Stock .....	\$183,187,566.96
	Investment in Other Companies:		\$183,187,566.96	Premium Realized on Capital Stock.....	29,657.75
10,337,152.29	Capital Stock of Chicago, St. Paul, Minneapolis and Omaha Ry. Co. (149,200 Shares), acquired by purchase .....	10,337,152.29	\$183,217,224.71	Total Capital Stock and Premium..	\$183,217,224.71
13,288,971.43	Capital Stock of Chicago, St. Paul, Minneapolis and Omaha Ry. Co. (130,060 Shares), acquired in exchange for C. & N. W. Ry. Co. Common Stock .....	13,288,971.43		LONG TERM DEBT.	
3,910,575.93	Preferred Stock of Union Pacific Railroad Company (41,715 Shares).....	3,910,575.93	\$277,977,200.00	Funded Debt Held by the Public.....	\$279,831,300.00
195,292.50	Miscellaneous .....	167,992.50	15,163,000.00	Funded Debt Held in Treasury and Due from Trustee:	
540,713.33	Other Investments .....	3,323,351.54	35,500,000.00	Unpledged .....	15,290,000.00
			\$328,640,200.00	Pledged .....	35,500,000.00
\$560,939,654.96	Total Investments .....	\$575,132,215.84		Total Long Term Debt.....	\$330,621,300.00
	CURRENT ASSETS.			CURRENT LIABILITIES.	
\$10,196,995.90	Cash .....	\$5,864,662.89	\$4,084,737.91	Traffic and Car Service Balances Payable.....	\$4,326,265.28
130,000.00	Loans and Bills Receivable.....	14,500.00	6,424,767.41	Audited Accounts and Wages Payable....	5,261,602.48
1,371,771.33	Traffic and Car Service Balances Receivable .....	753,665.33	275,872.93	Miscellaneous Accounts Payable.....	250,024.37
2,701,427.28	Net Balance Receivable from Agents and Conductors .....	2,756,795.98	745,111.34	Interest Matured Unpaid .....	710,255.59
5,730,242.26	Miscellaneous Accounts Receivable.....	7,975,070.84	26,199.70	Dividends Matured Unpaid .....	35,305.20
12,564,849.27	Material and Supplies .....	12,064,384.32	2,237,397.04	Unmatured Interest Accrued .....	2,250,306.61
369,707.28	Other Current Assets .....	371,991.73	272,595.74	Other Current Liabilities .....	1,063,980.44
\$33,064,993.32	Total Current Assets .....	\$29,801,071.09	\$14,066,682.07	Total Current Liabilities.....	\$13,897,739.97
	UNADJUSTED DEBITS.			UNADJUSTED CREDITS.	
\$4,542.84	Advances account Equipment Purchased under Trust Agreements .....	\$2,883.45	\$6,807,241.00	Tax Liability .....	\$7,152,960.00
2,347,521.71	Capital Stock and Scrip, C. & N. W. Ry. Co., Held in Treasury.....	2,347,531.71	557,432.17	Premium on Funded Debt .....	596,143.95
	Company Bonds Held in Treasury and Due from Trustee:		45,443,238.59	Accrued Depreciation—Equipment .....	47,090,544.91
15,163,000.00	Unpledged .....	15,290,000.00	2,033,976.57	Other Unadjusted Credits .....	3,710,351.07
35,500,000.00	Pledged .....	35,500,000.00	\$54,841,888.33	Total Unadjusted Credits.....	\$58,549,999.93
2,305,452.09	Other Unadjusted Debits .....	2,376,778.79		CORPORATE SURPLUS.	
\$55,320,516.64	Total Unadjusted Debits .....	\$55,517,193.95	\$2,767,407.25	Additions to Property Through Surplus..	\$2,900,344.08
\$649,325,164.92	Total Assets .....	\$660,450,480.88	65,791,762.56	Profit and Loss .....	71,263,872.19
			\$68,559,169.81	Total Corporate Surplus.....	\$74,164,216.27
			\$649,325,164.92	Total Liabilities .....	\$660,450,480.88

## Chicago, Saint Paul, Minneapolis and Omaha Railway Company

## Report of the Board of Directors

TO THE STOCKHOLDERS OF THE CHICAGO, SAINT PAUL, MINNEAPOLIS AND OMAHA RAILWAY COMPANY:

The Board of Directors submits herewith its report of the operations and affairs of the Company for the year ended December 31, 1928.

Mileage of road operated, 1,746.53

OPERATING REVENUES:	
Freight .....	\$20,607,221.94
Passenger .....	4,190,125.62
Other Transportation .....	1,900,750.64
Incidental .....	364,953.47
	\$27,063,051.67
OPERATING EXPENSES:	
Maintenance of Way and Structures.....	\$4,878,658.16
Maintenance of Equipment .....	5,170,012.22
Traffic .....	489,510.35
Transportation .....	11,408,480.03
Miscellaneous Operations .....	159,329.32
General .....	937,942.82
Transportation for Investment—Cr.....Cr.	54,969.91
	22,988,962.99
Percentage of Expenses to Revenue.....	84.95
Net Revenue from Railway Operations forwarded .....	\$4,074,088.68
DEDUCTIONS FROM REVENUE:	
Railway Tax Accruals (5.14 per cent. of Revenues) .....	\$1,391,513.72
Uncollectible Railway Revenues .....	3,223.54
Equipment Rents—Net .....	437,333.50

Joint Facility Rents—Net .....	384,202.87	2,216,273.63
Net Railway Operating Income.....		\$1,857,815.05
NONOPERATING INCOME:		
Rental Income .....	\$55,443.87	
Dividend Income .....	37,441.85	
Income from Funded Securities.....	5,583.40	
Income from Unfunded Securities and Accounts, and Other Items.....	89,388.53	187,857.65
Gross Income .....		\$2,045,672.70
DEDUCTIONS FROM GROSS INCOME:		
Rental Payments .....	\$1,750.52	
Interest on Funded Debt.....	2,601,164.27	
Other Deductions .....	37,353.11	2,640,267.90
Net Deficit .....		\$594,595.20

The freight revenues for the year again recorded an increase which was \$535,783.24 or 2.67 per cent., as compared with the preceding year. Approximately 42 per cent., of this increase was attributable to transportation of agricultural products with the increase in grain movement as the predominant factor. The tonnage of grain handled increased 16.34 per cent., and the revenue therefrom slightly less.

While there was a decrease in animals and products of mines handled, there was an increase of 12.42 per cent., in the revenue earned from transportation of manufactures and miscellaneous, the leading commodities as to increases

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in this group being refined petroleum and its products and automobiles and auto trucks.

Passenger revenues, with a decrease of \$457,856.03 or 9.85 per cent., as compared with the preceding year, continued the decline of the preceding seven years. The "short haul" local business was again the leading factor, accounting for three-fourths of the year's decrease in passenger revenues. It is a significant fact that during the last five year period the receipts from "local to line" tickets decreased 42.12 per cent.

To meet this situation local passenger train service has been reduced to the extent that governmental authority would permit. Two gasoline-electric motor passenger cars, the cost of operation of which is considerably less than that of a steam train, were placed in service during the year 1928, and four additional cars are to supplant steam train runs in 1929.

Operating expenses increased \$1,188,717.63 or 5.45 per cent., as compared with the year 1927. Of that amount increased charges on account of the track structure, including ties, rails, fastenings and the labor cost of application accounted for \$570,708.27. Charges for Maintenance of Equipment increased \$279,778.30.

Increases in the rates of pay of practically all employees in transportation service increased Transportation Expenses approximately \$236,000 for the year 1928, as compared with 1927. Further economies and efficiency in train operation held the increase in Transportation Expenses for the year to \$200,573.63, despite the increase in wages stated above and the increase of 3.08 per cent., in the net ton miles of freight traffic handled.

Gross tons handled per train increased 2.15 per cent.; car mileage per day increased 7.98 per cent.; the daily mileage of freight locomotives increased 7.06 per cent.; the fuel consumption per gross ton mile decreased 3.08 per cent.

The Company acquired new equipment during the year consisting of:

8	Switching Locomotives.
200	Steel Underframe Flat Cars.
250	Steel Underframe and Upperframe Stock Cars.
550	Steel Coal Cars.
2	Gasoline-Electric Motor Passenger Cars.

#### Funded Debt

At the close of the preceding year the amount of Funded Debt, held by the Public, was .....

\$46,919,400.00

The above amount has been increased by the Bonds and Equipment Trust Certificates sold during the year ended December 31, 1928, as follows:

Chicago, Saint Paul, Minneapolis and Omaha Railway Equipment Trust Certificates of 1917, Series "E", 4¾%....	\$480,000.00
Chicago, Saint Paul, Minneapolis and Omaha Railway Equipment Trust Certificates of 1917, Series "F", 4¾%....	540,000.00

Chicago, Saint Paul, Minneapolis and Omaha Railway Debenture Gold Bonds of 1930, 5% .....	1,100,000.00	2,120,000.00
		\$49,039,400.00

And the above amount has been decreased during the year ended December 31, 1928, by Equipment Trust Certificates redeemed, as follows:

Chicago, Saint Paul, Minneapolis and Omaha Railway Equipment Gold Notes, 6%, redeemed .....	\$156,800.00
Chicago, Saint Paul, Minneapolis and Omaha Railway Equipment Trust Certificates of 1917, Series "B", 7%, redeemed .....	95,000.00
Chicago, Saint Paul, Minneapolis and Omaha Railway Equipment Trust Certificates of 1917, Series "C", 4¾%, redeemed .....	41,000.00
Chicago, Saint Paul, Minneapolis and Omaha Railway Equipment Trust Certificates of 1917, Series "D", 4¾%, redeemed .....	83,000.00
Total Funded Debt redeemed.....	375,800.00
Leaving Funded Debt held by the Public, December 31, 1928 .....	\$48,663,600.00

#### Capital Stock

There has been no change since the close of the preceding year in the Capital Stock and Scrip of the Company.

The Company's authorized Capital Stock is Fifty Million Dollars (\$50,000,000), of which the following has been issued to December 31, 1928.

#### OUTSTANDING:

Common Stock and Scrip.....	\$18,559,086.69
Preferred Stock and Scrip.....	11,259,859.09
	\$29,818,945.78

#### OWNED BY THE COMPANY:

Common Stock and Scrip.....	\$2,844,206.64
Preferred Stock and Scrip.....	1,386,974.20
	4,231,180.84

Total Capital Stock and Scrip, December 31, 1928.. \$34,050,126.62

Appended hereto may be found Statements and Accounts relating to the business of the Company for the year, and the condition of its affairs on December 31, 1928.

The Board desires to express its appreciation to the officers and employees of the Company for their loyal and efficient service during the year.

By order of the Board of Directors.

FRED W. SARGENT,  
President.

St. Paul, Minnesota, April 1, 1929.

### Comparative General Balance Sheet (1,676.71 Miles)

December 31, 1927	ASSETS.	December 31, 1928	December 31, 1927	LIABILITIES	December 31, 1928
	INVESTMENTS.			CAPITAL STOCK.	
\$ 90,135,651.50	Investment in Road and Equipment.....	\$ 92,187,112.77	\$ 29,818,945.78	Held by Public .....	\$ 29,818,945.78
497,933.89	Miscellaneous Physical Property.....	494,645.01	4,231,180.84	Held in Treasury .....	4,231,180.84
392,885.18	Investment in Affiliated Companies.....	399,244.48		Total Capital Stock.....	\$ 34,050,126.62
15,200.76	Other Investments .....	14,632.28	\$ 34,050,126.62		
\$ 91,041,671.33	Total Investments .....	\$ 93,095,634.54		LONG TERM DEBT.	
	CURRENT ASSETS.		\$ 46,919,400.00	Funded Debt Held by the Public.....	\$ 48,663,600.00
\$ 805,249.30	Cash .....	\$ 751,404.14	634.09	Scrip Owned by the Company.....	634.09
32,739.07	Traffic and Car Service Balances Receivable .....	36,317.33	\$ 46,920,034.09	Total Long Term Debt.....	\$ 48,664,234.09
	Net Balance Receivable from Agents and Conductors .....	490,955.58		CURRENT LIABILITIES.	
504,627.45	Miscellaneous Accounts Receivable.....	590,004.68	\$ 790,334.21	Traffic and Car Service Balances Payable..	913,960.25
574,988.34	Material and Supplies .....	2,618,691.45	3,454,938.48	Audited Accounts and Wages Payable..	4,376,274.81
2,644,948.35			184,545.24	Miscellaneous Accounts Payable.....	120,843.89
			51,281.00	Interest Matured Unpaid .....	49,656.00
\$ 4,562,552.51	Total Current Assets.....	\$ 4,487,373.18	8,072.50	Dividends Matured Unpaid .....	8,072.50
	UNADJUSTED DEBITS.		433,880.58	Unmatured Interest Accrued .....	459,325.25
\$ 50,290.50	Discount on Funded Debt.....	\$ 30,720.45	500.00	Funded Debt Matured Unpaid.....	500.00
2,844,206.64	Common Stock and Scrip, C. St. P. M. & O. Ry. Co., Held in Treasury .....	2,844,206.64	\$ 4,923,552.01	Total Current Liabilities.....	\$ 5,928,632.70
1,386,974.20	Preferred Stock and Scrip, C. St. P. M. & O. Ry. Co., Held in Treasury.....	1,386,974.20		UNADJUSTED CREDITS.	
634.09	Consolidated Mortgage Bond Scrip Due from Central Union Trust Company....	634.09	\$ 348,901.11	Tax Liability .....	\$ 379,830.33
473,834.54	Other Unadjusted Debits.....	410,508.38	89,995.92	Premium on Funded Debt.....	63,759.20
\$ 4,755,939.97	Total Unadjusted Debits.....	\$ 4,673,043.76	7,435,885.93	Accrued Depreciation—Equipment .....	7,314,729.78
			197,709.35	Other Unadjusted Credits.....	244,605.37
			\$ 8,072,492.31	Total Unadjusted Credits.....	\$ 8,002,924.68
\$100,360,163.81	Total Assets .....	\$102,256,051.48	\$ 1,184,155.04	CORPORATE SURPLUS.	
			5,209,803.74	Additions to Property Through Surplus..	\$ 1,190,371.77
			\$ 6,393,958.78	Profit and Loss .....	4,419,761.62
			\$100,360,163.81	Total Corporate Surplus.....	\$ 5,610,133.39
				Total Liabilities .....	\$102,256,051.48

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# Atchison, Topeka & Santa Fe Railway System

Office of The Atchison, Topeka and Santa Fe Railway System,  
No. 5 Nassau Street, New York City.

March 15, 1929.

## To the Stockholders:

Your Directors submit the following report for the fiscal year January 1, 1928, to December 31, 1928, inclusive.

### Income and Profit and Loss Statement

The following is a summary of the transactions of the System for the years ending December 31, 1927 and 1928:

	1927.	1928.
Operating Revenues	\$255,617,824.81	\$247,632,836.61
Operating Expenses	178,240,266.33	171,992,255.08
Net Operating Revenue	\$77,377,558.48	\$75,640,581.53
Railway Tax Accruals	19,865,472.88	17,772,346.19
Uncollectible Railway Revenues	45,081.31	50,126.44
Equipment and Joint Facility Rents	2,863,899.80	2,485,582.92
Net Railway Operating Income	\$54,603,104.49	\$55,332,525.98
Other Income	6,444,856.17	6,224,256.62
Gross Income	\$61,047,960.66	\$61,556,782.60
Miscellaneous Tax Accruals	59,862.70	76,604.45
Rent for Leased Roads and Other Charges	61,037.44	455,628.30
Interest on Bonds, including accrued interest on Adjustment Bonds	\$61,049,135.40	\$61,024,549.85
Net Corporate Income (representing amount available for dividends and surplus)	11,295,018.32	11,094,119.30
From the net corporate income for the year the following sums have been deducted:		
<b>DIVIDENDS ON PREFERRED STOCK—</b>		
No. 60 (2½%) paid		
Aug. 1, 1928	\$3,104,320.00	
No. 61 (2½%) paid		
Feb. 1, 1929	3,104,320.00	
	\$6,208,640.00	
<b>DIVIDENDS ON COMMON STOCK—</b>		
No. 92 (2½%) paid		
June 1, 1928	\$6,040,470.00	
No. 93 (2½%) paid		
Sept. 1, 1928	6,040,732.50	
No. 94 (2½%) paid		
Dec. 1, 1928	6,040,732.50	
No. 95 (2½%) paid		
Mar. 1, 1929	6,040,732.50	
	24,162,667.50	
California-Arizona Lines Bonds Sinking Fund	20,769.27	
S. F. & S. J. V. Ry. Co. Bonds Sinking Fund	45,487.04	
	30,437,563.81	
Surplus carried to Profit and Loss		\$19,492,866.74
Surplus to credit of Profit and Loss, December 31, 1927	\$265,373,844.02	
Surplus appropriated for investment in physical property	\$187,775.06	
Sundry Adjustments	1,312,662.69	
	1,500,437.75	
	263,873,406.27	
Surplus to credit of Profit and Loss December 31, 1928		\$283,366,273.01

"Other Income" consists of interest accrued and dividends received on securities owned, including United States Government securities, interest on bank balances, rents from lease of road and other property, and other miscellaneous receipts.

### Comparison of Operating Results

The following is a statement of revenues and expenses of the System for the year ending December 31, 1928, in comparison with the previous year:

	Year ending Dec. 31, 1928.	Year ending Dec. 31, 1927.	Increase or Decrease.
<b>OPERATING REVENUES:</b>			
Freight	\$189,003,111.71	\$193,214,188.03	\$4,211,076.32
Passenger	38,371,577.24	42,695,282.61	4,323,705.37
Mail, Express, and Miscellaneous	20,258,147.66	19,708,354.17	549,793.49
Total Operating Revenues	\$247,632,836.61	\$255,617,824.81	\$7,984,988.20
<b>OPERATING EXPENSES:</b>			
Maintenance of Way and Structures	\$41,786,098.15	\$41,813,137.54	\$27,039.39
Maintenance of Equipment	47,915,568.45	50,838,495.77	2,922,927.32
Traffic	5,640,588.65	5,578,244.79	62,343.86
Transportation—Rail Line	71,674,693.93	75,491,456.84	3,816,762.91
Miscellaneous Operations	175,624.67	125,643.00	49,981.67
General	6,279,349.30	6,125,479.70	153,869.60
Transportation for Investment—Cr.	1,479,668.07	1,732,191.31	252,523.24
Total Operating Expenses	\$171,992,255.08	\$178,240,266.33	\$6,248,011.25
Net Operating Revenue	\$75,640,581.53	\$77,377,558.48	\$1,736,976.95
Railway Tax Accruals	17,772,346.19	19,865,472.88	2,093,126.69

Uncollectible Railway Revenues	50,126.44	45,081.31	5,045.13
Railway Operating Income	\$57,818,108.90	\$57,467,004.29	\$351,104.61
Equipment Rents—Net—Dr.	1,720,879.91	2,155,635.57	434,755.66
Joint Facility Rents—Net—Dr.	764,703.01	708,264.23	56,438.78
Net Railway Operating Income	\$55,332,525.98	\$54,603,104.49	\$729,421.49

The following are averages for 1928 compared as with 1927: The average tons of freight (revenue and company) per loaded car mile decreased from 22.75 to 22.19, or 2.46 per cent. The average tons of freight (revenue and company) carried per freight-train mile (freight and mixed) increased from 718.85 to 737.72, or 2.63 per cent.

The average freight revenue per freight-train mile increased from \$7.57 to \$8.14, or 7.53 per cent.

The average passenger revenue per passenger-train mile decreased from \$1.75 to \$1.58, or 9.71 per cent.

The average passenger-train revenue per passenger-train mile decreased from \$2.37 to \$2.23, or 5.91 per cent.

The tons of freight carried one mile (revenue and company, but excluding water ton miles) decreased 1,223,303,869, or 6.66 per cent, while miles run by freight-train cars (loaded and empty) in freight and mixed trains decreased 91,876,548, or 7.11 per cent, and the mileage of such trains decreased 2,311,459, or 9.05 per cent.

The number of passengers carried one mile decreased 110,283,950, or 8.23 per cent, while miles run by passenger-train cars (excluding work) in passenger and mixed trains decreased 2,233,423, or 1.14 per cent, and the mileage of such trains decreased 100,002, or .41 per cent.

### Taxes

Federal and State and Local tax accruals for the year 1928 aggregate \$17,772,346.19, a decrease of \$2,093,126.69 as compared with the year 1927. A comparison of these accruals for the two years is presented in the following table:

	1928.	1927.	Increase or Decrease.
<b>FEDERAL TAXES:</b>			
Income and War	\$4,432,563.27	\$7,039,093.54	\$2,606,530.27
Capital Stock	94,000.00		94,000.00
Stamp and License	11,910.17	11,980.90	70.73
Total Federal	\$4,538,473.44	\$7,051,074.44	\$2,512,601.00
State and Local	13,233,872.75	12,814,398.44	419,474.31
Grand Total	\$17,772,346.19	\$19,865,472.88	\$2,093,126.69

### General

During the early months of 1928 there was a substantial decrease in traffic from the preceding year, business in your Company's territory being quiet, with some hesitation in business generally over the country. Crop conditions, however, developed very favorably as the season advanced, finally giving Kansas a wheat crop almost equal to its record, with cotton and corn furnishing excellent yields. Citrus fruits and grapes from California fell below the preceding year in their yields.

Gross earnings decreased \$7,984,988.20, due principally to a decline in freight earnings of \$4,211,076.32 and in passenger of \$4,323,705.37, while other earnings increased \$549,793.49. The falling off in freight was due mainly to two causes: a decrease in quantity of oil and certain perishables, and a lowering of rates. The decrease in passenger business may be ascribed to more extended use of the automobile and bus which has followed the improvement of the roads of the country.

Offsetting in part the smaller earnings operating expenses were less by \$6,248,011.25. There was a reduction in maintenance of equipment of \$2,922,927.32, and in transportation of \$3,816,762.91, while taxes decreased \$2,093,126.69, due principally to the reduction in the Federal rate from 13½ per cent to 12 per cent, and to adjustments of back taxes with the Federal Government.

So far crop conditions are better than a year ago at this time, as there was more moisture during the late fall and winter, the improvement being greatest in Illinois and Western Texas. However, even with the advantage already gained quite favorable conditions will be needed during the coming months if last season's results are to be equaled. Prices for citrus fruits have been good and for other products very fair, so that farmers and ranchers, taken as a whole, possess greater buying power than a year ago, which, with the larger reserves of grain and cotton, gives promise of a somewhat larger volume of traffic during the early months of 1929 compared with the preceding year.

There are some aspects of the general railroad situation which cause concern. For a time after Government Control there was a generally helpful attitude on the part of the public toward the roads which effectively restrained hostile legislation. Now, however, the need of fair treatment of the railroads in order to insure a capable transportation machine seems to be forgotten and sundry measures for the benefit of this or that interest are being pushed in the legislative bodies, after they have been held to be improper, unjust, and unwarranted by the Commissions and bodies appointed to take care of such matters. Such measures as full crew and train limit bills, the bill to abolish the Pullman surcharge, and the so-called Hoch-Smith resolution are examples. Provision for subsidies in connection with waterways and for control of traffic at the expense of the railroads is another example. The railroads have spent billions to enlarge their facilities and are in position to give adequate transportation, but volume of business is necessary to make these expenditures remunerative. If the waterways need and receive special legislation and financial assistance, fair competition is not maintained, the government becomes a partner in waterway transportation, the taxpayers, including the railroads, furnishing a part of the funds required, and a substantial part of the traffic which the railroads are prepared to handle is diverted.

During the year 792 miles of old rail were replaced with new. Of the new rail 514 miles were 110-lb. and 278 miles 90-lb. On January 1, 1925, 110-lb. rail was adopted as standard for our trans-continental main lines and since that date 2,120 miles of this weight have been laid.

During the past year your Company has joined with the other railroads in the formation of an express company which took over the express business March 1, 1929. This new company serves simply as agent for the railroads and will be

operated without profit, but it is hoped that this arrangement will give the railroads a larger return from this traffic than has been possible in the past.

During the year 1928 your Company paid out in pensions to its retired employes \$530,973.96, there being 1,161 pensioners on its rolls at December 31, 1928, compared with \$476,200.01 paid in 1927 and 1,080 pensioners December 31, 1927. The pensioners have an average service of 30 years with the Company. During 1928 death benefits were paid in 350 cases, amounting to \$381,581.52, compared with \$391,816.29 in 1927 in 383 cases. The average length of service in all cases in which death benefits have been paid is 16 years, which was also the average for 1928.

Under orders of the Interstate Commerce Commission, applying to the larger railroads, your Company has installed automatic train control on 175 miles of track on the Illinois Division between Pequot and East Ft. Madison at a cost of over \$10,000 per mile. An indicator in the cab shows whether high, medium, or low speed is permissible and if the speed is not reduced to the designated limit promptly the system takes control of the locomotive and reduces the speed as prescribed or stops the train as may be necessary. This system has now been in use for about one year and its general operation has been satisfactory from a mechanical standpoint, but the cost is against it. Before going further your Company will await the thorough testing in service of the value of this and similar systems.

Your Directors again take pleasure in expressing their appreciation of faithful and efficient service rendered by officers and employees.

W. B. STOREY,  
President.

## Illinois Central System

### Report of the Board of Directors

To the Stockholders of the Illinois Central Railroad Company:

The Board of Directors submits the following report of the operations and affairs of the Illinois Central Railroad Company for the year ended December 31, 1928, including The Yazoo & Mississippi Valley Railroad Company, the entire capital stock of which is owned or controlled by the Illinois Central Railroad Company. For convenience the two companies are designated by the term "Illinois Central System."

The number of miles of road operated as of December 31, 1927, was 6,612.43

Additions for year:	
Construction of new line—Edgewood, Ill., to Hess, Ill.	109.50
Construction of new line—Big Bay, Ill., to Metropolis, Ill.	10.49
Construction of new line—Akin, Ill., to Groat, Ill.	6.93
Construction of new line—Chiles, Ky., to Maxon, Ky.	2.23
Trackage rights over P. & I. R. R.—Metropolis, Ill., to Paducah, Ky.	13.95
Trackage rights over N. C. & St. L. R. R. at Paducah, Ky.	.92
	144.02

Less:	
Retirement of line—Brookhaven, Miss., to Monticello, Miss.	20.06
Retirement of line—Moore's, Miss., to Lamont, Miss.	3.70
Cancellation of trackage rights over N. O. G. N. R. R. at Monticello, Miss.	1.33
Various changes due to remeasurement, etc.	.72
	25.81
	118.21

The number of miles operated as of December 31, 1928, was... 6,730.64  
The average number of miles of road operated during the year was 6,698.46

### Income

A summary of the income for the year ended December 31, 1928, as compared with the previous year is stated below.

	1928	1927	Increase + Decrease —
Average miles operated during year	6,698.46	6,601.82	+ 96.64
Railway operating revenues (Table 2)	\$179,605,452.11	\$182,967,560.02	— \$3,362,107.91
Railway operating expenses (Table 10)	137,479,786.45	141,921,643.80	— 4,441,857.35
Net revenue from railway operations	42,125,665.66	41,045,916.22	+ 1,079,749.44
Railway tax accruals	12,212,999.50	11,889,965.08	+ 323,034.42
Uncollectible railway revenues	38,752.99	53,719.31	— 14,966.32
Railway operating income	29,873,913.17	29,102,231.83	+ 771,681.34
Equipment rents—net debit	1,643,141.37	2,685,561.38	— 1,042,420.01

Joint facility rent—net credit	686,427.56	760,281.33	— 73,853.77
Net railway operating income	28,917,199.36	27,176,951.78	+ 1,740,247.58
Non-operating income	3,516,034.40	4,372,979.50	— 856,945.10
Gross income	32,433,233.76	31,549,931.28	+ 883,302.48
Deductions from gross income	19,182,736.12	19,418,060.22	— 235,324.10
Income balance transferred to credit of profit and loss	13,250,497.64	12,131,871.06	+ 1,118,626.58

### Railway Operating Revenues

"Railway Operating Revenues" amounted to \$179,605,452.11 this year, as compared with \$182,967,560.02 last year, a decrease of \$3,362,107.91, or 1.84 per cent. For details of "Railway Operating Revenues" see Table 2.

"Freight Revenue" decreased \$1,181,491.72, or 0.83 per cent. The number of tons of revenue freight carried one mile was 15,494,819,712, a decrease of 626,420,461, or 3.89 per cent, compared with last year. The average rate per ton per mile was .914 cent, an increase of .028 cent, or 3.16 per cent, compared with the previous year. The falling off in the tonnage transported was due principally to decreases in bituminous coal and forest products, partly offset by increases in agricultural products, manufactures and miscellaneous. The decline in low rate bulk tonnage and its replacement in part by tonnage carrying higher rates combined to account largely for the increase in the average rate per ton per mile. There was no material change in freight rates.

"Passenger Revenue" decreased \$2,084,547.38, or 7.69 per cent. The number of passengers carried one mile was 919,493,453, a decrease of 36,540,113, or 3.82 per cent, compared with last year. The average revenue per passenger per mile was 2.722 cents, a decrease of .114 cent, or 4.02 per cent, compared with the previous year. The falling off in "Passenger Revenue" was due to losses caused by motor competition, partly offset by increased Chicago suburban business.

"Mail Revenue" increased \$185,363.50, or 7.04 per cent, due to an increase in mail pay ordered by the Interstate Commerce Commission, effective August 1, 1928.

"Express Revenue" increased \$328,374.32, or 8.27 per cent, as a result of the increase in the volume of express matter transported.

There was a decrease of \$128,275.31, or 9.24 per cent, in the remaining items of passenger train revenue, consisting of "Excess Baggage," "Parlor and Chair Car," "Milk" and "Other Passenger Train Revenue." The decreased revenues from these sources other than "Milk" were due to a falling off in passenger

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traffic; in the case of "Milk," to losses caused by motor truck competition.

"Switching" and "Special Service Train Revenue" increased \$85,366.01, or 4.11 per cent.

"Incidental" and "Joint Facility Revenues" decreased \$559,639.33, or 19.27 per cent, largely due to decreases in revenues from storage—freight, demurrage and miscellaneous. The first and second items were affected by the decrease in freight traffic, and the third item was affected by an accounting adjustment whereby amounts formerly included under this heading were transferred to "Freight Revenue."

#### Railway Operating Expenses

"Railway Operating Expenses" amounted to \$137,479,786.45 this year, as compared with \$141,921,643.80 last year, a decrease

of \$4,441,857.35, or 3.13 per cent. For details of "Railway Operating Expenses" see Table 10.

There was a decrease of \$1,932,158.24, or 7.85 per cent, in "Maintenance of Way and Structure Expenses," the details of which will be found in Table 10.

The decrease of \$1,518,429.71, or 3.58 per cent, in "Maintenance of Equipment Expenses" was due to decreased outlays for repairs to freight and switching locomotives and freight cars and to decreases in charges for equipment retirements.

The increase in "Traffic Expenses" of \$50,978.22, or 1.40 per cent, was due to increased outlays for solicitation and for the printing of tariffs, partly offset by a decrease in advertising expenses.

The decrease of \$1,174,406.42, or 1.80 per cent, in "Transportation Expenses" was due to a decrease in the volume of traffic

### Illinois Central System Condensed General Balance Sheet December 31, 1928, and Comparison with December 31, 1927

ASSET SIDE		December 31, 1928	December 31, 1927	Increase + Decrease —
<b>INVESTMENTS:</b>				
Road and equipment to June 30, 1907 .....	\$169,510,131.34	\$169,510,131.34		
Road and equipment since June 30, 1907 .....	284,398,093.83	283,673,041.83	+	\$725,052.00
Total road and equip- ment .....	\$453,908,225.17	\$453,183,173.17	+	\$725,052.00
Miscellaneous physical property .....	1,839,771.15	1,919,796.27	—	\$80,025.12
<b>Investments in affiliated companies:</b>				
Stocks .....	\$38,059,477.08	\$38,059,477.08		
Bonds .....	18,808,081.03	18,810,208.10	—	\$2,127.07
Notes .....	1,000,000.00	1,000,000.00		
Advances (Table 6) ..	175,300,927.03	171,440,275.38	+	\$3,860,651.65
	\$233,168,485.14	\$229,309,960.56	+	\$3,858,524.59
<b>Other investments:</b>				
Stocks .....	\$51,051.00	\$51,051.00		
Bonds .....	21,201.00	63,939.49	—	\$42,738.49
Notes, advances, etc. .	3,997,139.92	6,212,199.48	—	\$2,215,059.56
	\$4,069,391.92	\$6,327,189.97	—	\$2,257,798.05
Total investments .....	\$692,985,873.38	\$690,740,119.97	+	\$2,245,753.41
<b>CURRENT ASSETS:</b>				
Cash .....	\$8,379,837.53	\$6,802,926.99	+	\$1,576,910.54
Special deposits .....	42,508.84	2,351,151.67	—	\$2,308,642.83
Loans and bills receivable	4,067,969.59	1,990,634.11	+	\$2,077,335.48
Traffic and car-service balances receivable .....	2,055,772.35	2,547,197.76	—	\$491,425.41
Net balance receivable from agents and con- ductors .....	2,609,768.59	3,696,709.32	—	\$1,086,940.73
Miscellaneous accounts re- ceivable .....	12,234,405.87	10,164,646.17	+	\$2,069,759.70
Material and supplies ..	10,167,879.00	13,846,889.93	—	\$3,679,010.93
Interest and dividends receivable .....	171,820.29	674,026.62	—	\$502,206.33
Other current assets ....	203,617.80		+	\$203,617.80
Total current assets ..	\$39,933,579.86	\$42,074,182.57	—	\$2,140,602.71
<b>DEFERRED ASSETS:</b>				
Working fund advances ..	\$74,660.85	\$77,580.55	—	\$2,919.70
Other deferred assets ..	2,713,070.70	2,527,576.99	+	\$185,493.71
Total deferred assets ..	\$2,787,731.55	\$2,605,157.54	+	\$182,574.01
<b>UNADJUSTED DEBITS:</b>				
Discount on funded debt ..	\$6,335,616.82	\$6,721,481.06	—	\$385,864.24
Other unadjusted debits ..	4,299,793.36	4,158,619.80	+	\$141,173.56
Total unadjusted debits ..	\$10,635,410.18	\$10,880,100.86	—	\$244,690.68
Grand Total .....	\$746,342,594.97	\$746,299,560.94	+	\$43,034.03
LIABILITY SIDE		December 31, 1928	December 31, 1927	Increase + Decrease —
<b>STOCK:</b>				
Common stock .....	\$134,453,600.00	\$132,009,300.00	+	\$2,444,300.00
Less: Held in treasury ..	208.33	208.33		
Total common stock outstanding .....	\$134,453,391.67	\$132,009,091.67	+	\$2,444,300.00
Preferred stock, series "A" .....	19,991,800.00	22,436,100.00	—	\$2,444,300.00
Premium on capital stock	138,754.53	138,754.53		
Total stock outstanding	\$154,583,946.20	\$154,583,946.20		
<b>GOVERNMENTAL GRANTS:</b>				
Grants in aid of con- struction .....	\$9,150.87	\$9,150.87		
<b>LONG-TERM DEBT:</b>				
Funded Debt .....	\$426,623,042.98	\$430,430,672.02	—	\$3,807,229.04
Less: Owned within the System (Table 7) ....	60,669,000.00	58,295,000.00	+	\$2,374,000.00
Total long-term debt out- standing (Table 7) ...	\$365,954,442.98	\$372,135,672.02	—	\$6,181,229.04
<b>CURRENT LIABILITIES:</b>				
Traffic and car-service balances payable .....	\$3,945,115.75	\$3,412,687.78	+	\$532,427.97
Audited accounts and wages payable .....	17,591,822.59	19,489,620.22	—	\$1,897,797.63
Miscellaneous accounts payable .....	1,041,911.97	969,748.64	+	\$72,163.33
Interest matured unpaid	1,647,595.52	1,685,849.32	—	\$38,253.80
Dividends matured unpaid	20,177.55	49,872.80	—	\$29,695.25
Funded debt matured un- paid .....	22,743.32	1,113,851.70	—	\$1,091,108.38
Unmatured dividends de- clared .....	2,951,730.75	2,983,070.75	—	\$31,340.00
Unmatured interest ac- rued .....	2,748,683.64	2,838,124.18	—	\$89,440.54
Unmatured rents accrued	401,287.93	486,103.40	—	\$84,815.47
Other current liabilities .	1,158,138.14	247,256.52	+	\$910,881.62
Total current liabilities	\$31,529,207.16	\$33,276,185.31	—	\$1,746,978.15
<b>DEFERRED LIABILITIES:</b>				
Other deferred liabilities ..	\$4,676,317.47	\$4,558,641.81	+	\$117,675.66
Total deferred liabili- ties .....	\$4,676,317.47	\$4,558,641.81	+	\$117,675.66
<b>UNADJUSTED CREDITS</b>				
Tax liability .....	\$6,406,934.51	\$5,941,297.76	+	\$465,636.75
Insurance reserve .....		3,320,975.60	—	\$3,320,975.60
Accrued depreciation— Equipment .....	71,520,407.25	64,616,997.35	+	\$6,903,409.90
Other unadjusted credits	6,877,094.96	7,938,884.35	—	\$1,061,789.39
Total unadjusted credits	\$84,804,436.72	\$81,818,155.06	+	\$2,986,281.66
<b>CORPORATE SURPLUS:</b>				
Additions to property through income and surplus .....	\$10,252,843.26	\$10,219,621.78	+	\$33,221.48
Profit and loss (Table 3)	81,178,842.82	76,344,780.40	+	\$4,834,062.42
Total corporate surplus	\$91,431,686.08	\$86,564,402.18	+	\$4,867,283.90
As this consolidated balance sheet excludes all intercompany items, securities of The Yazoo & Mississippi Valley Railroad Company owned by the Illinois Central Railroad Company and its subsidiaries are not included. The difference between the par value of such securities as carried on the books of The Yazoo & Mississippi Valley Railroad Company and the amount at which the securities are carried on the books of the Illinois Central Railroad Company is entered here to balance.				
Grand Total .....	\$746,342,594.97	\$746,299,560.94	+	\$43,034.03

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handled and to economies effected by the lengthening of locomotive runs, by savings in fuel consumption and by the operation of the Edgewood Line, which was opened for service in May; these savings being partly offset by wage increases approximating \$1,040,000.00 granted several classes of employes during the year.

The increase of \$53,267.96, or 4.27 per cent, in "Miscellaneous Operations" was due to increased outlays for operating dining and buffet service.

The decrease of \$5,392.47, or 0.11 per cent, in "General Expenses" was due to decreases in law expenses, general office supplies and expenses, stationery and printing, valuation and other expenses, partly offset by increased pension allowances.

The increase in expenses by reason of the decrease of \$84,283.31 in "Transportation for Investment—Credit" was due to a decrease in transportation performed in connection with the construction work carried on during the year.

#### Railway Tax Accruals

"Railway Tax Accruals" amounted to \$12,212,999.50 this year, as compared with \$11,889,965.08 last year, an increase of \$323,034.42, or 2.72 per cent. There were increased accruals for state taxes and for federal income tax account increase in net taxable income. Taxes for the year were equal to 28.99 per cent of the "Net Revenue From Railway Operations" and exceeded the total dividends paid to stockholders by \$1,611,980.00.

#### Uncollectible Railway Revenues

"Uncollectible Railway Revenues" were \$38,752.99 this year, as compared with \$53,719.31 last year, a decrease of \$14,966.32.

#### Equipment Rents—Net Debit

"Equipment Rents—Net Debit" amounted to \$1,643,141.37 this year, as compared with \$2,685,561.38 last year, a decrease of \$1,042,420.01, due to the decreased use of foreign line cars over System lines.

#### Joint Facility Rent—Net Credit

"Joint Facility Rent—Net Credit" was \$686,427.56 this year and \$760,281.33 last year, a decrease of \$73,853.77, due largely to the increased use of facilities owned by other companies.

#### Non-Operating Income

"Non-operating Income" amounted to \$3,516,034.40 this year, as compared with \$4,372,979.50 last year, a decrease of \$856,945.10. There was a decrease in "Dividend Income" of \$299,679.45, due to the fact that a dividend of \$500,000.00 was received last year from the Madison Coal Corporation, whereas no dividend was paid this year, this decrease being partly offset by an increase of \$199,985.00 in the dividend received from the Central of Georgia Railway Company. There was a decrease in "Income From Funded Securities" of \$134,273.99, partly due to the refunding of United States Government securities at a lower interest rate in the previous year and partly to the sale of United States Government securities during the year. "Income From Unfunded Securities and Accounts" decreased \$446,942.35, owing to a decrease in the interest from temporary loans of funds derived from the sale of securities and to a decrease in the amount of interest during construction on capital outlays during the year. Other items of decrease were in "Income From Lease of Road," \$68.79, and in "Miscellaneous Non-operating Physical Property," \$13,476.19. These decreases were partly offset by an increase in "Miscellaneous Rent Income" of \$12,170.31, an increase in "Income From Capital Advances to Affiliated Companies" of \$10,337.52 and an increase in "Miscellaneous Income" of \$14,987.84.

#### Deductions from Gross Income

"Deductions From Gross Income" aggregated \$19,182,736.12 this year, as compared with \$19,418,060.22 last year, a decrease of \$235,324.10. The decrease of \$158,332.09 in "Interest on Funded Debt" was due to interest saved on equipment trust certificates matured and paid and to the retirement in the previous year of Illinois Central Railroad Company Fifteen-Year Gold Notes, partly offset by increased interest charges resulting from the issuance last year of Illinois Central Railroad Company and Chicago, St. Louis & New Orleans Railroad Company Joint First Refunding Mortgage Series "C" Bonds and Equipment Trust Certificates Series "O." A comparison of the fluctuations of interest may be made by reference to Table 7 in the report of this year and the corresponding table for the previous year. Other decreases were in "Interest on Unfunded Debt," \$39,757.59, in "Amortization of Discount on Funded Debt," \$37,818.59, in "Miscellaneous Rent Deductions," \$9,087.48, and in "Miscellaneous Income Charges," \$9,666.29. These decreases were partly offset by an increase in "Rent for Leased Roads" of \$11,541.87—consisting of increases in rents

for the Dubuque and Sioux City Railroad of \$20,960.51 and for the Chicago, St. Louis & New Orleans Railroad of \$35.00, partly offset in turn by a decrease in the rents for The Alabama and Vicksburg Railway of \$4,743.96 and for the Vicksburg, Shreveport & Pacific Railway of \$4,709.68—and increases in "Separately Operated Properties—Loss" of \$7,602.36 and in minor items of \$193.71.

#### Capital Stock and Funded Debt

Preferred stock with a par value of \$2,444,300.00 was converted into common stock during the year.

Under the terms of the Illinois Central Railroad Company and Chicago, St. Louis & New Orleans Railroad Company Joint First Refunding Mortgage there were issued \$18,000.00 par value of Series "A," or Dollar, Bonds in exchange for \$3,600 Sterling Bonds, the equivalent of \$17,460.00 of Series "B," or Sterling, Bonds upon payment of the difference of \$540.00.

There were retired and canceled during the year, under the terms of the respective trust agreements: Illinois Central Equipment Trust, Series "F," \$737,000.00; Series "G," \$324,000.00; Series "H," \$217,000.00; Series "I," \$443,000.00; Series "J," \$1,273,000.00; Series "K," \$863,000.00; Series "L," \$616,000.00; Series "N," \$311,000.00; Series "O," \$564,000.00, and Government Equipment Trust No. 33, \$647,100.00. Under the equipment agreement with The Pullman Company there was retired \$186,669.04, making a total for the year of \$6,181,769.04.

#### Securities Owned

United States Three and One-Half Per Cent Treasury Notes, Series "A," of 1930-1932 of the par value of \$2,270,000.00 and United States Fourth Liberty Loan Four and One-Quarter Per Cent Bonds of 1933-1938 of the par value of \$40,000.00 were sold during the year.

Paducah & Illinois Railroad Company First Mortgage Four and One-Half Per Cent Bonds of 1955 of the par value of \$45,000.00 were purchased during the year.

The Peoria & Pekin Union Railway Company redeemed \$15,000.00 par value of its Five Per Cent Debenture Bonds maturing November 1, 1928.

The Chicago & Illinois Western Railroad redeemed \$32,633.32 par value of its equipment trust certificates in two equal installments maturing February 1, 1928, and August 1, 1928, respectively.

#### Additions and Betterments—Expenditures

There was expended during the year for "Additions and Betterments" (including improvements on subsidiary and lessor properties) \$4,869,287.96. The following is a classified statement of these expenditures:

ROAD:	Total Expended
Engineering .....	\$ 263,602.05
Land for transportation purposes .....	424,955.44
Grading .....	660,641.91
Tunnels and subways .....	1,075,856.16
Bridges, Trestles and culverts .....	380,741.65
Ties .....	175,488.53
Rails .....	422,155.16
Other track material .....	453,060.60
Ballast .....	220,125.09
Track laying and surfacing .....	218,752.65
Right-of-way fences .....	41,149.66
Crossings and signs .....	415,177.81
Station and office buildings .....	406,542.88
Roadway buildings .....	Cr. 57,902.74
Water stations .....	66,928.72
Fuel stations .....	Cr. 31,081.42
Shops and engine houses .....	82,696.65
Grain elevators .....	188,570.96
Storage warehouses .....	350.29
Wharves and docks .....	54,406.18
Telegraph and telephone lines .....	47,041.42
Signals and interlockers .....	332,475.10
Power plant buildings .....	Cr. 6,518.75
Power transmission systems .....	Cr. 14,637.14
Power distribution systems .....	55,569.64
Power line poles and fixtures .....	8,337.70
Underground conduits .....	51,037.19
Miscellaneous structures .....	12,079.40
Paving .....	Cr. 2,116.53
Roadway machines .....	35,801.62
Roadway small tools .....	644.55
Assessments for public improvements .....	290,962.44
Revenues and operating expenses during construction .....	18,773.61
Cost of road purchased .....	Cr. 2,250.00
Other expenditures—Road .....	Cr. 751.18
Shop machinery .....	99,166.58
Power plant machinery .....	Cr. 115,088.57
Power substation apparatus .....	Cr. 1,893.31
Unapplied construction—material and supplies .....	41,593.86
<b>TOTAL .....</b>	<b>\$ 6,312,536.04</b>
<b>EQUIPMENT:</b>	
Steam locomotives .....	Cr. \$ 173,655.30
Other locomotives .....	7,000.71
Freight train cars .....	Cr. 1,801,575.51
Passenger train cars .....	208,173.58
Motor equipment of cars .....	29,566.64
Work equipment .....	72,980.74

Miscellaneous equipment .....	2,069.62
TOTAL .....	Cr. \$ 1,655,439.52
GENERAL:	
Organization expenses .....	\$ 277.68
General officers and clerks .....	25,352.64
Law .....	27,358.45
Stationery and printing .....	5.82
Taxes .....	28,542.91
Interest during construction .....	128,594.60
Other expenditures—General .....	2,059.34
TOTAL .....	\$ 212,191.44
GRAND TOTAL .....	\$ 4,869,287.96

[ADVERTISEMENT]

## General Remarks

The number of stockholders of record at the close of the year was 21,147, of whom 15,448 were holders of common stock and 5,699 were holders of preferred stock. There were 22,209 stockholders at the close of the preceding year.

The Board of Directors takes pleasure in expressing its appreciation to the officers and employees for their loyal and efficient service.

L. A. DOWNS, President.

By order of the Board of Directors.

C. H. MARKHAM, Chairman.

## Financial News

(Continued from page 932)

TOTAL DEDUCTIONS FROM GROSS INCOME .....	2,914,871	3,057,831	—142,960
Net income .....	1,196,875	1,545,241	—348,366
Disposition of net income—			
Dividend on capital stock .....	600,000		
Surplus for year carried to profit and loss .....	12,088,084		

**ERIE—Annual Report.**—The annual report of this company for 1928 shows net income after interest and other charges of \$10,002,884, compared with net income of \$3,512,650 in 1927. Selected items from the income statement follow:

ERIE	1928	1927	Increase or Decrease
Average mileage operated .....	2,316.80	2,316.80	
RAILWAY OPERATING REVENUES .....	124,976,543	122,478,355	2,498,188
Maintenance of way .....	15,238,304	16,104,896	— 866,592
Maintenance of equipment .....	26,285,543	28,647,904	—2,362,360
Transportation .....	46,954,241	48,737,266	—1,783,025
TOTAL OPERATING EXPENSES .....	95,362,967	100,264,697	—4,901,730
Operating ratio .....	80.37	85.83	5.46
NET REVENUE FROM OPERATIONS .....	29,613,576	22,213,658	7,399,918
Railway tax accruals .....	5,057,831	4,821,270	236,561
Railway operating income .....	24,555,745	17,392,388	7,163,357
Hire of freight cars—Dr. .....	4,811,793	4,615,813	195,980
Joint facility rents .....	11,951	Dr. 119,851	7,900
NET RAILWAY OPERATING INCOME .....	20,047,159	12,960,700	7,086,459
Non-operating income .....	4,675,280	5,500,888	— 825,607
GROSS INCOME .....	24,722,440	18,461,588	6,260,852
Rent for leased roads .....	2,390,924	2,392,695	— 1,770
Interest on funded debt .....	11,199,320	11,237,924	38,604
TOTAL DEDUCTIONS FROM GROSS INCOME .....	14,719,556	14,948,938	— 229,382
Net income .....	10,002,884	3,512,650	6,490,234
Surplus for year carried to profit and loss .....	8,614,792	2,133,763	6,481,029

**INTERNATIONAL & GREAT NORTHERN.—Final Valuation.**—The Interstate Com-

merce Commission has issued a final valuation report, as of 1917, finding the final value for rate-making purposes of the property owned and used for common-carrier purposes to be \$38,948,650, and that of the Austin Dam & Suburban to be \$36,700.

**KANSAS CITY SOUTHERN-MISSOURI-KANSAS-TEXAS.**—The Interstate Commerce Commission has announced a further postponement of the hearings on its anti-trust complaints against these companies. That in the Kansas City Southern case has been postponed from April 22 to May 20 and that in the M-K-T case from May 6 to June 3. Both are to be held at Washington before Director C. D. Mahaffie of the Commission's Bureau of Finance.

**LEHIGH & HUDSON RIVER.—Annual Report.**—The annual report of this company for 1928 shows net income, after interest and other charges, of \$564,227, as compared with net income in 1927 of \$615,852. Selected items from the income statement follow:

LEHIGH & HUDSON RIVER	1928	1927	Increase or Decrease
Average mileage operated .....	96.60	96.60	
RAILWAY OPERATING REVENUES .....	2,822,847	3,362,338	—539,491
Maintenance of way .....	290,664	444,480	—153,816
Maintenance of equipment .....	418,628	521,201	—102,573
Transportation .....	1,005,442	1,186,596	—181,154
TOTAL OPERATING EXPENSES .....	1,868,304	2,298,799	—430,495
Operating ratio .....	66.2	68.4	2.2
NET REVENUE FROM OPERATIONS .....	954,543	1,063,540	—108,997
Railway tax accruals .....	185,465	199,899	— 14,434
Railway operating income .....	769,076	863,102	— 96,026
Hire of Equipment .....	147,965	162,845	— 14,880
Joint facility rents .....	121,426	151,395	— 29,969
GROSS INCOME .....	834,197	930,681	— 96,484
NET INCOME .....	564,227	615,852	51,625

**LOUISVILLE & NASHVILLE.—Acquisition.**—This road has been authorized by the Interstate Commerce Commission to acquire, by lease, the properties of the Louisville, Henderson & St. Louis. Authority has also been granted to assume liabilities for outstanding securities of the lessor company.

**LOUISVILLE & NASHVILLE.—Construction Authorized.**—This company has been

authorized by the Interstate Commerce Commission to construct a 7.69-miles extension to its Left Fork branch in Bell County, Ky.

**MOBILE & OHIO.—Annual Report.**—The annual report of this company for 1928 shows net income after interest and other charges of \$1,082,426, equivalent to \$17.99 a share on outstanding stock. This compares with net income in 1927 of \$1,349,667, or \$22.43 a share. Selected items from the income statement follow:

MOBILE & OHIO	1928	1927	Increase or Decrease
Average mileage operated .....	1,160.15	1,161.33	— 1.18
RAILWAY OPERATING REVENUES .....	17,369,129	18,055,294	—686,165
Maintenance of way .....	2,525,930	2,676,027	—150,097
Maintenance of equipment .....	3,056,391	3,149,553	— 93,162
Transportation .....	6,382,763	6,594,777	—212,014
TOTAL OPERATING EXPENSES .....	13,199,308	13,594,791	—395,483
Operating ratio .....	75.99	75.30	.69
NET REVENUE FROM OPERATIONS .....	4,169,821	4,460,503	—290,682
Railway tax accruals .....	1,013,014	1,080,000	— 66,986
Railway operating income .....	not shown		
Hire of Equipment, Dr. .....	234,005	160,805	63,200
Joint facility rents .....	279,842	284,568	— 4,726
NET RAILWAY OPERATING INCOME .....	2,647,695	2,931,071	—283,376
Non-operating income .....	162,334	213,468	— 51,134
GROSS INCOME .....	2,810,029	3,144,539	—334,510
Interest on funded debt .....	1,358,175	1,426,019	— 67,844
TOTAL DEDUCTIONS FROM GROSS INCOME .....			
Net income .....	1,082,426	1,349,667	—267,241
Disposition of net income—			
Dividends of 12 per cent on capital stock .....	722,016	722,016	
Surplus for year carried to profit and loss .....	360,410	627,651	—267,241

**NEW YORK CENTRAL.—Unification Case.**—The Fonda, Johnstown & Gloversville has asked the Interstate Commerce Commission to re-open the unification case to permit it to present evidence as to why its 57 miles of electric railway should be included with the New York Central system. The commission's decision included a condition that the N. Y. C. make an offer to acquire the company's steam railroad.

**OKLAHOMA RAILROAD COMPANY.—Acquisition of Control.**—This company has been authorized by the Interstate Commerce Commission to acquire, by lease, the facilities of the Oklahoma City Junction Railway Company and, by purchase of capital stock, to acquire control of the Oklahoma Belt Railroad Company.

**SOUTHERN PACIFIC.—Bonds.**—The Interstate Commerce Commission has authorized the proposed issue of \$65,166,000 of 40-year 4½ per cent gold bonds of 1929, and \$19,549,800 of common stock, the bonds to be sold at not less than 94 and interest and the stock to be sold at par.

**ST. LOUIS, SAN FRANCISCO & TEXAS.—Trackage Rights.**—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to acquire trackage rights over the line proposed to be built by the Chicago, Rock Island & Gulf from Quanah, Tex., to a connection in Wilbarger county with a line proposed to be built by the St. L. S. F. & T., from Seymour to Vernon, Tex.

**ST. LOUIS SOUTHWESTERN.—Final Valuation.**—The Interstate Commerce Commission has issued a final valuation report finding the final value for rate-making purposes of the properties used by the St. Louis Southwestern System for common-carrier purposes, as of 1915, to be \$58,535,235, including \$1,194,031 for working capital. The recorded investment in road and equipment on valuation date, according to the report, was \$67,430,327 but with adjustments indicated in the report this would be reduced to \$62,434,044. The company contended that its investment in road and equipment, properly stated for the system, is not less than \$104,038,287. The outstanding capitalization was reported as \$92,439,000.

**TENNESSEE CENTRAL.—New Director.**—Frederic M. Halsey of Harvey, Fiske & Son, New York, has been elected to the board of directors of this road.

**TEXAS & PACIFIC.—Bonds.**—This company has been authorized by the Interstate Commerce Commission to issue \$34,000,000 of general and refunding mortgage 5 per cent bonds. Authority is granted to sell \$20,000,000 in bonds of the proposed issue at not less than 96¾ per cent of par and accrued interest, the proceeds to be used for re-embursing the treasury for capital expenditures made during the years 1927 and 1928 and proposed to be made during the current year. Of the remainder, \$5,000,000 is to be pledged and repledged as collateral for short term notes and \$9,000,000 to be held in the treasury of the company awaiting further order of the Commission.

**WAYCROSS & SOUTHERN.—Abandonment.**—The Interstate Commerce Commission has authorized the abandonment by this road of its entire line extending from Hebardville to Hopkins, Ga., a distance of 20 miles.

**WESTERN PACIFIC.—Equipment Trust.**—This company has applied to the Interstate Commerce Commission for authority for an issue of \$1,095,000 of 5½ per cent equipment trust certificates.

### Average Prices of Stocks and of Bonds

	Apr. 16	Last week	Last year
Average price of 20 representative railway stocks.	129.85	129.11	121.94
Average price of 20 representative railway bonds..	91.60	90.70	96.80

### Dividends Declared

Atlantic Coast Line.—\$3.50, semi-annually; Extra, \$1.50, both payable July 10 to holders of record June 12.

Bangor & Aroostook.—Common, \$.87, quarterly; Preferred, \$1.75, quarterly, both payable July 1 to holders of record May 31.  
Cincinnati Northern.—Extra, \$10.00, payable April 20 to holders of record April 15.

### Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for ratemaking purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

International & Great Northern	\$38,948,650	1917
St. Louis Southwestern (used property)	\$58,535,235	1915
Richmond Belt	\$137,224	1916
Trinity & Brazos Valley	\$9,064,056	1916

## Railway Officers

### Executive

**Harold S. Vanderbilt**, chairman of the finance committee of the Chicago & North Western, has been elected vice-president, with headquarters at New York.

**C. J. Geyer**, engineer maintenance of way of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been appointed assistant to the vice-president in charge of operation, with the same headquarters.

**A. C. Shields**, general manager of the Denver & Rio Grande Western, has been elected vice-president and general manager, with headquarters as before at Denver, Colo. **B. H. Taylor**, general traffic manager, with headquarters at Denver, has been elected vice-president in charge of traffic, with headquarters at the same point and the position of general traffic manager has been abolished.

**Eugene C. Mann**, who has been appointed vice-president, secretary and treasurer of the Wabash, with headquarters at New York, was born in Indianapolis, Ind., on July 5, 1885. He was educated in the grammar and high schools at Pittsburg, Kan., and entered railway service on June 1, 1900, as train crew caller on the Kansas City Southern. From September, 1903, to August, 1907, he served as yard clerk and assistant cashier in the local freight offices of the St. Louis Southwestern at Tyler, Tex., Texarkana, Tex., Waco, Tex., and Illmo, Mo. He then became assistant accountant and superintendent of bridges and buildings for the Kansas City Southern at Texarkana, serving in that capacity until February 1910, at which time he was appointed accountant and division engineer of the same road. He was assistant chief clerk and traveling accountant in the accounting department of the Missouri-Kansas-Texas from November, 1914, until September, 1915, then entering the service of the Texas & Pacific as clerk in the account-

ing department and statistician for the general manager. In June, 1917, Mr. Mann became traveling accounting and principal clerk in the accounting department of the Wabash. He was appointed general accountant and chief clerk to the comptroller of that road in April, 1919, and in August, 1923, he was



Eugene C. Mann

appointed auditor of capital expenditures. He was promoted to the positions of assistant secretary and assistant treasurer of the Wabash in September 1925, serving in that capacity continuously until his promotion to vice-president, secretary and treasurer.

**George W. Hamilton**, assistant to the freight traffic manager of the Union Pacific System, has been promoted to assistant to the vice-president in charge of traffic, with headquarters as before at Omaha, Neb. Mr. Hamilton has been in the service of the Union Pacific for 34 years. He was born on February 1, 1880, at Omaha and entered railway service at the age of 15 years as a messenger boy in the traffic department. During the following 18 years he served successively in that capacity, as rate clerk, chief rate clerk and chief clerk in the general freight office and in 1913 he was advanced to assistant general

freight agent at Omaha. While the railroads were under federal control he acted as secretary to the Omaha district freight traffic committee. Mr. Hamilton was promoted to assistant to the freight traffic manager in 1927, his further promotion to assistant to the vice-president becoming effective on April 16.



George W. Hamilton

Hamilton was promoted to assistant to the freight traffic manager in 1927, his further promotion to assistant to the vice-president becoming effective on April 16.

## Financial, Legal and Accounting

**Fletcher Rockwood**, general attorney of the Great Northern, with headquarters at St. Paul, Minn., has resigned to become associated with the law firm of Carey & Kerr, Portland, Ore., Great Northern attorneys for Oregon.

**Frank M. Snyder**, deputy comptroller of the Central Railroad of New Jersey, with headquarters at Jersey City, N. J., has been appointed comptroller, with the same headquarters, succeeding **J. A. Taylor**, retired. The position of deputy comptroller has been abolished.

## Operating

**G. A. Briggs** has been appointed superintendent of freight claim prevention of the Grand Trunk Western, with headquarters at Detroit, Mich.

**William Gullickson** has been appointed trainmaster of the Montana, Wyoming & Southern, with headquarters at Bellevue, Mont.

**J. J. Crowley** has been appointed trainmaster of the Milwaukee Terminal division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Milwaukee, Wis., succeeding **C. E. Shaft**, who has been transferred to the Dubuque division, with headquarters at Dubuque, Iowa. Mr. Shaft replaces **G. H. Rowley**, who has been transferred to the Madison division, with headquarters at Madison, Wis.

**B. Ward, Jr.**, assistant trainmaster in the office of the general manager of the Eastern region of the Pennsylvania at Philadelphia, Pa., has been transferred to the Toledo division.

**F. J. McGovern**, yardmaster on the Atlantic division, has been promoted to assistant trainmaster on the St. Louis division. **J. H. Kelly**, acting assistant trainmaster on the Toledo division, has been promoted to assistant trainmaster on the Grand Rapids division, succeeding **L. R. Winslow**, who has been transferred to the Toledo division. **R. A. Huffman**, general yardmaster on the Toledo division, has been promoted to assistant trainmaster on the Logansport division, succeeding **A. Miller**, who has been transferred to the Toledo division.

**Frederick W. Brown**, who has been appointed assistant general manager of the Atlantic Coast Line, with headquarters at Wilmington, N. C., was born in New Canaan, Conn., on February 17, 1872. He entered railroad service in June, 1887, as clerk for the New York, New Haven & Hartford, serving successively to 1906 as clerk, operator, dispatcher, chief dispatcher, trainmaster, chief clerk to the superintendent and assistant superintendent. From 1906 to 1920 he was in the service of the Southern, serving as dispatcher, trainmaster, superintendent of terminals, superintendent, chief in charge of the train tonnage bureau, assistant to the general manager, assistant to the vice-president and staff officer. Mr. Brown re-entered the service of the Atlantic Coast Line in March, 1920, as assistant to the general manager, in which position he served until his recent promotion as assistant general manager.



Frederick W. Brown

**L. E. Wetterau** has been appointed division freight agent of the Southern, with headquarters at Lynchburg, Va., succeeding **F. J. Davis**, deceased.

**F. V. Stark**, general agent for the Southern Pacific at Mexico City, Mex., has been promoted to assistant traffic manager, with headquarters at the same point.

**Lorne McCutcheon**, division freight agent of the Canadian National, with headquarters at Ottawa, Ont., has been appointed general agent of the Canadian

National Railways and the Canadian (West Indies) Steamships, Ltd., with headquarters at Barbados, B. W. I.

**H. A. Carson**, district freight agent of the Canadian National, with headquarters at Toronto, Ont., has been appointed division freight agent, with headquarters at Ottawa, Ont. **Hector Lapointe**, chief clerk at North Bay, has been appointed traffic representative, with headquarters at Montreal.

**C. S. Campbell**, assistant general freight agent of the Atlantic Coast Line, with headquarters at Richmond, Va., has been appointed general agent at that point. **W. N. Ernst** has been appointed assistant general freight agent, with headquarters at Richmond, Va., succeeding Mr. Campbell.

**L. J. Hausman**, commercial agent for the St. Louis Southwestern at San Antonio, Tex., has been promoted to assistant general freight agent at that point. **H. A. Klein**, division freight agent at Waco, Tex., and **W. R. Cunningham, Jr.**, and **R. A. Irving**, commercial agents at El Paso, Tex., and Houston, respectively, have been promoted to general agents at the same points.

**P. V. D. Lockwood** has been appointed advertising manager of the New York Central Lines, with headquarters at New York, succeeding **A. D. Palmer**, deceased. Mr. Lockwood has been an executive of the H. E. Lesan Advertising Agency for the past ten years, previously, for 12 years, he was advertising manager of the New York Central Lines, the position to which he has again been appointed.

**J. W. White**, northern traffic representative of the Missouri-Kansas-Texas lines, with headquarters at Chicago, has been promoted to general freight and passenger agent of the Missouri-Kansas-Texas of Texas in charge of solicitation and with headquarters at Dallas, Tex. **T. L. Darneal**, assistant general freight agent, with headquarters at Dallas, has been transferred to St. Louis, Mo. **C. P. Bowher**, division freight agent at St. Louis, has been promoted to northern traffic representative at Chicago, to succeed Mr. White.

**J. E. Davis**, assistant general freight agent of the Union Pacific System, with headquarters at Portland, Ore., has been promoted to assistant to the freight traffic manager, with headquarters at Omaha, Neb., succeeding **George W. Hamilton**, who has been promoted to assistant to the vice-president. **Julian Nance**, general agent of the freight department at Kansas City, Mo., has been promoted to general freight agent, with headquarters at the same point, succeeding **H. G. Kaill**, who retired voluntarily from active duty on April 1. **C. C. Beach**, chief clerk in the general freight department at Portland, has been appointed assistant general freight agent, with headquarters at that point, succeeding Mr. Davis. **R. A. Peters**, gen-

## Traffic

eral agent at New Orleans, La., has been appointed general agent of the freight department at Kansas City, replacing Mr. Nance. **G. J. Garmon** has been appointed general agent at New Orleans to succeed Mr. Peters.

**W. H. Chisholm**, who has been promoted to European traffic manager of the Illinois Central, the Central of Georgia and the Ocean Steamship Company of Savannah, with headquarters



W. H. Chisholm

at London, England, has been associated with the European office of the I. C. for nearly 23 years. He was born at Birkenhead, England, in 1872 and was educated at the Liverpool Institute. Starting at the age of 15, Mr. Chisholm served a five year office apprenticeship with the Inman Steamship Company, Liverpool. After the completion of his apprenticeship he was connected with the Inman Steamship Company for three more years and in 1898 was appointed co-agent of the Empire Transportation Company, Seattle, Wash., at Dawson City, Yukon, Alaska. Two years later he returned to Liverpool to become connected with the Gulf Transport Line. On June 1, 1904, Mr. Chisholm was appointed chief clerk in the office of the Illinois Central in London, then during federal control of the railroads, when the foreign agency of the Illinois Central was discontinued, serving with the Australian Commonwealth Government Line, where he remained until 1920 when he returned to the Illinois Central as assistant European traffic manager. His promotion to European traffic manager became effective on March 16.

### Engineering, Maintenance of Way and Signaling

**W. H. Moulthrop**, office and field manager on the Southern Pacific, has been promoted to assistant to the chief engineer, with headquarters at San Francisco, Cal.

**F. H. Rothe**, supervisor on the Pittsburgh division of the Pennsylvania, has been promoted to assistant engineer in the office of the chief engineer of maintenance of way of the Western region at Chicago.

**J. Calloghan**, deputy minister of railways of Alberta, has been appointed by

the British Columbia provincial government to locate a route for the Pacific Great Eastern from Quesnel, B. C., its present terminus, to Prince George.

**R. H. Carpenter**, assistant engineer on the Missouri Pacific at St. Louis, Mo., has been transferred to Poplar Bluff, Mo., to succeed **C. E. Bishop**, who has been appointed motor transportation supervisor for the Missouri Pacific Transportation Company at the same point.

**D. C. Fenstermaker**, who has returned to the Chicago, Milwaukee, St. Paul & Pacific from an extended leave of absence, has been appointed district engineer of the Southern district, excluding the Terre Haute division, with headquarters at Chicago. He succeeds **C. T. Jackson**, who has been promoted to special engineer, with headquarters at Chicago. During his leave of absence Mr. Fenstermaker served as chief engineer of the North & South, with headquarters at Itasca, Ill.

**Richard Brooke**, assistant engineer of maintenance of way of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been appointed engineer maintenance of way, with the same headquarters, succeeding **C. J. Geyer**, who has been promoted. **J. E. King**, general supervisor of bridges and buildings at Richmond, has been appointed assistant engineer, maintenance of way, succeeding Mr. Brooke. He will in turn be succeeded by **A. E. Botts**, division engineer of the Huntington division, with headquarters at Huntington, W. Va. **M. I. Dunn, Jr.**, assistant division engineer at Huntington has been promoted to division engineer, succeeding Mr. Botts. **R. L. Kittredge** will succeed Mr. Dunn as assistant division engineer of the Huntington division.

### Mechanical

**F. I. Nesbit**, general foreman in the mechanical department of the Spokane International, has been promoted to master mechanic, with headquarters as before at Spokane, Wash. Mr. Nesbit succeeds **C. H. Prescott**, who retired from active duty on April 1 after 23 years of service. Mr. Prescott will remain with the railroad in a consulting capacity.

### Purchases and Stores

**W. J. Smith**, tie and timber agent of the Missouri-Kansas-Texas, with headquarters at Denison, Tex., has resigned and has organized the W. J. Smith Wood Preserving Company, Denison, which will handle the treating of timber for the Katy and other companies.

### Special

**W. R. Mills**, general advertising agent of the Great Northern, with headquarters at St. Paul, Minn., died in that city on April 15, following an operation for appendicitis.

## Obituary

**Martin Devney**, superintendent of the St. Louis division of the Louisville & Nashville, with headquarters at Evansville, Ind., died in that city on April 10, following a cerebral hemorrhage.

**C. H. Allen**, superintendent of freight claim prevention of the Grand Trunk System with headquarters at Detroit, Mich., died at the Grosse Pointe Hospital in that city on March 21.

**Alexander R. McEwan**, director of radio of the Canadian National Railways, died in Montreal on April 11 after a short illness. Mr. McEwan was born in Brooklyn, N. Y., on November 7, 1875. He was a graduate of the Polytechnic School of Brooklyn and the Boston School of Technology. He entered the service of the Canadian National in September, 1923, as assistant radio engineer. He became acting director of radio in June 1925, and in May, 1926, he was appointed director of radio, in which capacity he served until his death.

**W. C. Hattan**, chief engineer of the Clinchfield, with headquarters at Erwin, Tenn., died in that city on March 25 from complications following an operation for appendicitis. Mr. Hattan was born at Kerrs Creek, Rockbridge County, Va., on December 15, 1875. He was educated at Washington & Lee University and entered railway service in 1899 as rodman and inspector of materials and masonry inspector on the West Virginia Short Line. He served in various engineering capacities on different roads until 1912, when he was appointed division engineer of the Elkhorn extension of the Carolina, Clinchfield & Ohio. In 1916, he was general superintendent in charge of construction of the Missouri-Kansas-Texas belt line and terminals at San Antonio, Tex. From 1917 to 1920, Mr. Hattan was engaged in various engineering enterprises, returning to railroad work on the latter date as chief engineer of the Carolina, Clinchfield & Ohio, now the Clinchfield Railroad Company, in which capacity he served until his death.

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On the New York Central